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SOCIETY for AMATEURS

THERE are a lot of things that nobody can do . . . but that can be done readily by several people. Nobody — except possibly a professional weight-lifter —can lift a modern automobile. But frequently the simplest way to separate a pair of cars that have "locked horns" is to simply pick up one, and get it out of the way. There's usually at least a dozen husky citizens standing around looking; co-operative effort, and a good "Yo-heave-ho!" and the individually-impossible job is done with neatness and dispatch. What no man can do, many can do readily.

I, together with a group of friends, with the co-operation of Street & Smith Publications, Inc., want to do something that no one can possibly do. We've been talking about, discussing, and grousing about the lack of a journal of speculative thinking —the organ of a Society for Speculative thinking.

Now—let's *do* something about it! If nobody else will—let *us* do the job that needs doing.

It can't be done professionally—because the essence of Professional standing is high-reliability work, *non*-speculative. When you hire a professional in any field, you want a man who *does* know what he's doing, not someone who *may* know. You want someone who will say, "I can't do that," if the probability that he can accomplish the proposed task is small. You do *not* want someone who guesses that he might be able to if everything goes right.

The essence of Professional status is predictable reliability.

Therefore Professional status and speculative exploring of possibilities, of improbables-that-may-be-important, are mutually exclusive. The Professionals, of any field whatever, can't start a Speculative Society.

Dr. Edward Teller has repeatedly stated, before the Senate Investigating Committee, and in *Time* magazine and elsewhere, that he feels strongly that "Science needs fans." It does; not worshipers and Loyal Followers —but true fans, in the sense that baseball fans are fans of the game. The true fan, unlike the Loyal Follower, is frequently the Loyal Opposition; the baseball fans are as well known for the Bronx Cheer, as for their ardent cheers. They built Babe Ruth a stadium—and have always been ready to yell "Throw that bum outta the park!" The essence of true, and effective fans is that they form their own, independent judgments—and express them loudly, publicly, and effectively. Whether those judgments are favorable or unfavorable.

No individual can trust himself to judge objectively his own work, his own conclusions. Neither can any group trust the group-judgments without outside, and truly independent cross-checks. Science does, indeed, need fans—as any other group does.

The amateur always has been, and I believe always will be, the major source of major, breakthrough ideas. Let's define "amateur" as "one who thinks and studies and works in a field in which he is not a qualified professional, and does not claim professional standing, or authority." In this sense, an M.D. working at his hobby-interest of chemistry, say, is an amateur. Whenever a man renounces professional standing, he is free to act in a speculative manner, to try new, improbable, interesting things—not as a Certified Authority, but as an Interested Amateur.

To indicate the basis for my belief in the importance of the amateur, note this: Gilbert, who started the science of Magnetics, was a Court Physician, not a physicist. Helmholtz, who formulated the Law of Conservation of Energy, started the science of acoustics, and half a dozen other major concepts of physics, was a Professor—of Physiology, however, not Physics. But neither of these brilliant medical men solved the great, basic problem of their own field; Pasteur, a chemist, cracked the germ-disease problem wide open. It was a monk who solved the mechanism underlying the anciently-known fact that descendants showed the characteristics of their ancestral line. Priestly, a Unitarian minister, discovered oxygen. Old Ben Franklin, politician, statesman, author and publisher, first defined positive and negative electricity, and demonstrated by means of his kite-and-key (and an incredible amount of good fortune; he should have dropped dead!) experiment that lightning was electrical in nature. The science of nucleonics was started by a chemist—Becquerel.

Heinrich Hertz, following Clerk

Maxwell's mathematical lead, demonstrated electromagnetic radiation below the infrared range. And an Italian youngster, Marconi, made the breakthrough that showed that the radiation could, and did, travel enormous distances.

Modern Science can trace an enormous percentage of its great fundamental concepts to the old Royal Society of London; Franklin, Cavendish, Priestly, Newton, Hooke, Halley . . . the list of the names of the men who first presented their epoch-making concepts before the Royal Society meetings is a list of The Greats of all Science.

But . . . *these men were not scientists*. No more than Captain John Smith, or the rest of the Pilgrims were citizens of the United States. Those Greats of Science were *not* scientists; they were, and called themselves, Natural Philosophers. The Royal Society was a society of Gentlemen Amateurs: it was not in any sense a Professional Society; it was a club, where gentlemen having a personal, hobby interest in Natural Philosophy met to exchange their ideas and discuss their experiments.

Only with the passage of years, and the rising recognition of the importance of the findings of the Natural Philosophers, the Gentlemen Amateurs, did the Royal Society become a professional society—and Science a profession.

Today, there is no group, no organized society, of Natural Philosophers and Gentlemen Amateurs.

Why not? That such a group can accomplish things of immense importance has been proven by the immense accomplishments of the Royal Society, and its counterparts in other nations at the time. That professional societies were needed, and are needed, is unquestionably true. That the old amateur society should gradually grow into professional societies was inevitable.

But that there should be no Society of Gentlemen Amateurs, no Natural Philosophers, no organized Speculative Thinkers—this is not inevitable, necessary, nor desirable.

The Gentlemen Amateurs *are* uncomfortable people to have around, of course. Priestly was a member of a local group of Gentlemen Amateurs —and was driven out of town for his pains. (The fact that he was a Unitarian in Trinitarian England had something to do with it. Newton had, all his life, to be very careful not to reveal his Unitarian views.) The speculative, creative thinker is *not* comfortable. He "is that gadfly," as Socrates truly said, who makes those around him uncomfortable by blithely asking questions of the Unquestionable Certainties. Individually, they can usually be suppressed.

It was the organization of the Royal Society that permitted many men to do what no man could do—force consideration of the Unquestionable Certainties, without getting killed, or harassed into silence, as Galileo had been.

Where one individual is a crack-

(*Continued on page* 156)

THE MIRACLE-WORKERS

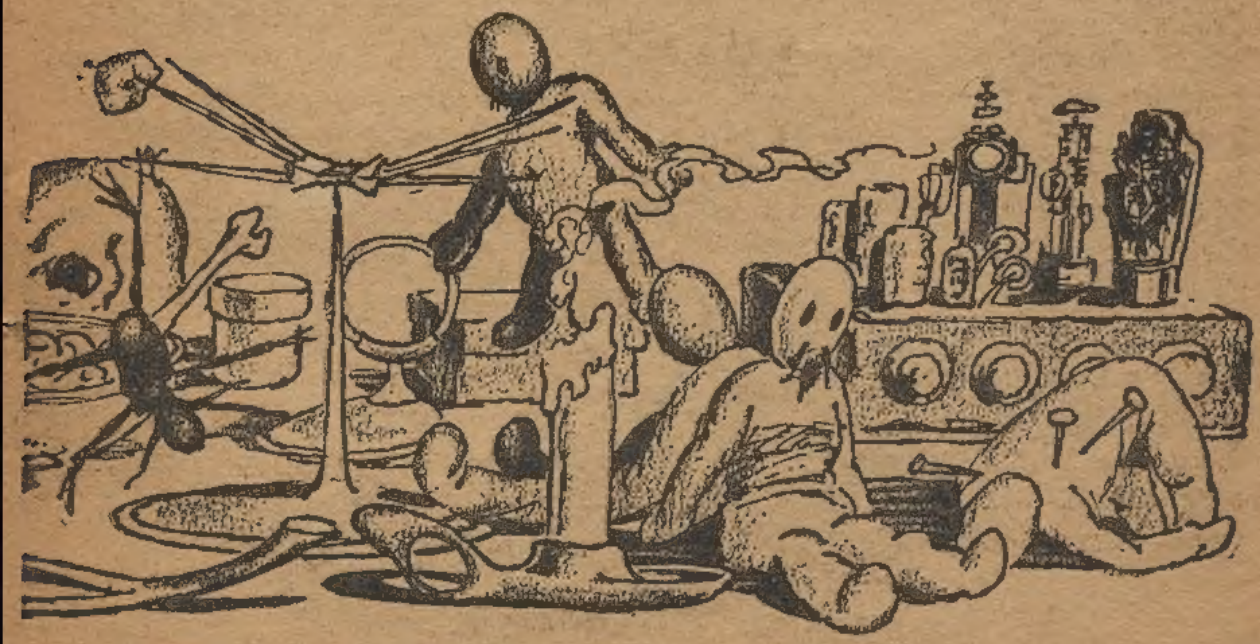
BY JACK VANCE

Illustrated by Freas

***A miracle is a supernatural occurrence. But of course, that must, for any intelligent entity, be something beyond nature* as he understands it.**

I

THE war party from Faide Keep moved eastward across the downs: a column of a hundred armored knights, five hundred foot soldiers, a train of wagons. In the lead rode Lord Faide, a tall man in his early maturity, spare and catlike, with a sallow dyspeptic face. He sat in the ancestral car of the Faides, a boat-shaped vehicle floating two feet above the moss, and carried, in addition to his sword and



dagger, his ancestral side weapons.

An hour before sunset a pair of scouts came racing back to the column, their club-headed horses loping like dogs. Lord Faide braked the motion of his car. Behind him the Faide kinsmen, the lesser knights, the leather-capped foot soldiers halted; to the rear the baggage train and the high-wheeled wagons of the jinxmen creaked to a stop.

The scouts approached at breakneck speed, at the last instant flinging their horses sidewise. Long shaggy legs kicked out, padlike hooves plowed through the moss. The scouts jumped to the ground, ran forward. "The way to Ballant Keep is blocked!"

Lord Faide rose in his seat, stood staring eastward over the gray-green downs. "How many knights? How many men?"

"No knights, no men, Lord Faide. The First Folk have planted a forest between North and South Wildwood."

Lord Faide stood a moment in reflection, then seated himself, pushed the control knob. The car wheezed, jerked, moved forward. The knights touched up their horses; the foot soldiers resumed their slouching gait. At the rear the baggage train creaked into motion, together with the six wagons of the jinxmen.

The sun, large, pale and faintly pink, sank in the west. North Wildwood loomed down from the left, separated from South Wildwood by an area of stony ground, only sparsely patched with moss. As the sun passed behind the horizon, the new planting became visible: a frail new growth connecting the tracts of woodland like a canal between two seas.

Lord Faide halted his car, stepped down to the moss. He appraised the landscape, then gave the signal to make camp. The wagons were ranged in a circle, the gear unloaded. Lord Faide watched the activity for a moment, eyes sharp and critical, then turned and walked out across the downs through the lavender and green twilight. Fifteen miles to the east his last enemy awaited him: Lord Ballant of Ballant Keep. Contemplating tomorrow's battle, Lord Faide felt reasonably confident of the outcome. His troops had been tempered by a dozen campaigns; his kinsmen were loyal and single-hearted. Head Jinxman to Faide Keep was Hein Huss, and associated with him were three of the most powerful jinxmen of Pangborn: Isak Comandore, Adam McAdam and the remarkable Enterlin, together with their separate troupes of cabalmen, spell-binders and apprentices. Altogether, an impressive assemblage. Certainly there were obstacles to be overcome: Ballant Keep was strong; Lord Ballant would fight obstinately; Anderson Grimes, the Ballant jinxman, was efficient and highly respected. There was also this nuisance of the First Folk and the new planting which closed the gap between North and South Wildwood. The First Folk were a pale and feeble race, no

match for human beings in single combat, but they guarded their forests with traps and deadfalls. Lord Faide cursed softly under his breath. To circle either North or South Wildwood meant a delay of three days, which could not be tolerated.

Lord Faide returned to the camp. Fires were alight, pots bubbled, orderly rows of sleep-holes had been dug into the moss. The knights groomed their horses within the corral of wagons; Lord Faide's own tent had been erected on a hummock, beside the ancient car.

Lord Faide made a quick round of inspection, noting every detail, speaking no word. The jinxmen were encamped a little distance apart from the troops. The apprentices and lesser spell-binders prepared food, while the jinxmen and cabalmen worked inside their tents, arranging cabinets and cases, correcting whatever disorder had been caused by the jolting of the wagons.

Lord Faide entered the tent of his Head Jinxman. Hein Huss was an enormous man, with arms and legs heavy as tree trunks, a torso like a barrel. His face was pink and placid, his eyes were water-clear; a stiff gray brush rose from his head, which was innocent of the cap jinxmen customarily wore against the loss of hair. Hein Huss disdained such precautions: it was his habit, showing his teeth in a face-splitting grin, to rumble, "Why should anyone hoodoo me, old Hein Huss? I am so inoffensive. Whoever tried would surely die, of shame and remorse."

Lord Faide found Huss busy at his cabinet. The doors stood wide, revealing hundreds of mannikins, each tied with a lock of hair, a bit of cloth, a fingernail clipping, daubed with grease, sputum, excrement, blood. Lord Faide knew well that one of these mannikins represented himself. He also knew that should he request it Hein Huss would deliver it without hesitation. Part of Huss' *mana* derived from his enormous confidence, the effortless ease of his power. He glanced at Lord Faide and read the question in his mind. "Lord Ballant did not know of the new planting. Anderson Grimes has now informed him, and Lord Ballant expects that you will be delayed. Grimes has communicated with Gisborne Keep and Castle Cloud. Three hundred men march tonight to reinforce Ballant Keep. They will arrive in two days. Lord Ballant is much elated."

Lord Faide paced back and forth across the tent. "Can we cross this planting?"

Hein Huss made a heavy sound of disapproval. "There are many futures. In certain of these futures you pass. In others you do not pass. I cannot ordain these futures."

Lord Faide had long learned to control his impatience at what sometimes seemed to be pedantic obfuscation. He grumbled, "They are either very stupid or very bold planting across the downs in this fashion. I cannot imagine what they intend."

Hein Huss considered, then

grudgingly volunteered an idea. "What if they plant west from North Wildwood to Sarrow Copse? What if they plant west from South Wildwood to Old Forest?"

"Then Faide Keep is almost ringed by forest."

"And what if they join Sarrow Copse to Old Forest?"

Lord Faide stood stock-still, his eyes narrow and thoughtful. "Faide Keep would be surrounded by forest. We would be imprisoned. . . . These plantings, do they proceed?"

"They proceed, so I have been told."

"What do they hope to gain?"

"I do not know. Perhaps they hope to isolate the keeps, to rid the planet of men. Perhaps they merely want secure avenues between the forests."

Lord Faide considered. Huss' final suggestion was reasonable enough. During the first centuries of human settlement, sportive young men had hunted First Folk with clubs and lances, eventually had driven them from their native downs into the forests. "Evidently they are more clever than we realize. Adam McAdam asserts that they do not think, but it seems that he is mistaken."

Hein Huss shrugged. "Adam McAdam equates thought to the human cerebral process. He cannot telepathize with the First Folk, hence he deduces that they do not 'think.' But I have watched them at Forest Market, and they trade intelligently enough." He raised his head, appeared to listen, then reached into his cabinet, delicately tightened a noose around the neck of one of the mannikins. From outside the tent came a sudden cough and a whooping gasp for air. Huss grinned, twitched open the noose. "That is Isak Comandore's apprentice. He hopes to complete a Hein Huss mannikin. I must say he works diligently, going so far as to touch its feet into my footprints whenever possible."

Lord Faide went to the flap of the tent. "We break camp early. Be alert, I may require your help." Lord Faide departed the tent.

Hein Huss continued the ordering of his cabinet. Presently he sensed the approach of his rival, Jinxman Isak Comandore, who coveted the office of Head Jinxman with all-consuming passion. Huss closed the cabinet and hoisted himself to his feet.

Comandore entered the tent, a man tall, crooked and spindly. His wedge-shaped head was covered with coarse russet ringlets; hot red-brown eyes peered from under his red eyebrows. "I offer my complete rights to Keyril, and will include the masks, the head dress, the amulets. Of all the demons ever contrived he has won the widest public acceptance. To utter the name Keyril is to complete half the work of a possession. Keyril is a valuable property. I can give no more."

But Huss shook his head. Comandore's desire was the full simulacrum of Tharon Faide, Lord Faide's oldest son, complete with clothes, hair, skin, eyelash, tears, excreta, sweat

and sputum—the only one in existence, for Lord Faide guarded his son much more jealously than he did himself. "You offer convincingly," said Huss, "but my own demons suffice. The name Dant conveys fully as much terror as Keyril."

"I will add five hairs from the head of Jinxman Clarence Sears; they are the last, for he is now stark bald."

"Let us drop the matter; I will keep the simulacrum."

"As you please," said Comandore with asperity. He glanced out the flap of the tent. "That blundering apprentice. He puts the feet of the mannikin backwards into your prints."

Huss opened his cabinet, thumped a mannikin with his finger. From outside the tent came a grunt of surprise. Huss grinned. "He is young and earnest, and perhaps he is clever, who knows?" He went to the flap of the tent, called outside. "Hey, Sam Salazar, what do you do? Come inside."

Apprentice Sam Salazar came blinking into the tent, a thick-set youth with a round florid face, overhung with a rather untidy mass of straw-colored hair. In one hand he carried a crude pot-bellied mannikin, evidently intended to represent Hein Huss.

"You puzzle both your master and myself," said Huss. "There must be method in your folly, but we fail to perceive it. For instance, this moment you place my simulacrum backwards into my track. I feel a tug on my foot, and you pay for your clumsiness."

Sam Salazar showed small evidence of abashment. "Jinxman Comandore has warned that we must expect to suffer for our ambitions."

"If your ambition is jinxmanship," Comandore declared sharply, "you had best mend your ways."

"The lad is craftier than you know," said Hein Huss. "Look now." He took the mannikin, spit into its mouth, plucked a hair from his head, thrust it into a convenient crevice. "He has a Hein Huss mannikin, achieved at very small cost. Now, Apprentice Salazar, how will you hoodoo me?"

"Naturally I would never dare. I merely want to fill the bare spaces in my cabinet."

Hein Huss nodded his approval. "As good a reason as any. Of course you own a simulacrum of Isak Comandore?"

Sam Salazar glanced uneasily sidewise at Isak Comandore. "He leaves none of his traces. If there is so much as an open bottle in the room, he breathes behind his hand."

"Ridiculous!" exclaimed Hein Huss. "Comandore, what do you fear?"

"I am conservative," said Comandore dryly. "You make a fine gesture, but some day an enemy may own that simulacrum; then you will regret your bravado."

"Bah. My enemies are all dead, save one or two who dare not reveal themselves." He clapped Sam Salazar a great buffet on the shoulder. "To-

morrow, Apprentice Salazar, great things are in store for you."

"What manner of great things?"

"Honor, noble self-sacrifice. Lord Faide must beg permission to pass Wildwood from the First Folk, which galls him. But beg he must. Tomorrow, Sam Salazar, I will elect you to lead the way to the parley, to deflect deadfalls, scythes and nettle-traps from the more important person who follows."

Sam Salazar shook his head and drew back. "There must be others more worthy; I prefer to ride in the rear with the wagons."

Comandore waved him from the tent. "You will do as ordered. Leave us; we have had enough apprentice talk."

Sam Salazar departed. Comandore turned back to Hein Huss. "In connection with tomorrow's battle, Anderson Grimes is especially adept with demons. As I recall, he has developed and successfully publicized Pont, who spreads sleep; Everid, a being of wrath, Deigne, a force of fear. We must take care that in countering these effects we do not neutralize each other."

"True," rumbled Huss. "I have long maintained to Lord Faide that a single jinxman—the Head Jinxman in fact—is more effective than a group at cross-purposes. But he is consumed by ambition and does not listen."

"Perhaps he wants to be sure that should advancing years overtake the Head Jinxman other equally effective jinxmen are at hand."

"The future has many paths," agreed Hein Huss. "Lord Faide is well-advised to seek early for my successor, so that I may train him over the years. I plan to assess all the subsidiary jinxmen, and select the most promising. Tomorrow I relegate to you the demons of Anderson Grimes."

Isak Comandore nodded politely. "You are wise to give over responsibility. When I feel the weight of my years I hope I may act with similar forethought. Good night, Hein Huss. I go to arrange my demon masks. Tomorrow Keyril must walk like a giant."

"Good night, Isak Comandore."

Comandore swept from the tent, and Huss settled himself on his stool. Sam Salazar scratched at the flap. "Well, lad?" growled Huss. "Why do you loiter?"

Sam Salazar placed the Hein Huss mannikin on the table. "I have no wish to keep this doll."

"Throw it in a ditch, then." Hein Huss spoke gruffly. "You must stop annoying me with stupid tricks. You efficiently obtrude yourself upon my attention, but you cannot transfer from Comandore's troupe without his express consent."

"If I gain his consent?"

"You will incur his enmity, he will open his cabinet against you. Unlike myself, you are vulnerable to a hoodoo. I advise you to be content. Isak Comandore is highly skilled and can teach you much."

Sam Salazar still hesitated. "Jinx-

man Comandore, though skilled, is intolerant of new thoughts."

Hein Huss shifted ponderously on his stool, examined Sam Salazar with his water-clear eyes. "What new thoughts are these? Your own?"

"The thoughts are new to me, and for all I know new to Isak Comandore. But he will say neither yes nor no."

Hein Huss sighed, settled his monumental bulk more comfortably. "Speak then, describe these thoughts, and I will assess their novelty."

"First, I have wondered about trees. They are sensitive to light, to moisture, to wind, to pressure. Sensitivity implies sensation. Might a man feel into the soul of a tree for these sensations? If a tree were capable of awareness, this faculty might prove useful. A man might select trees as sentinels in strategic sites, and enter into them as he chose."

Hein Huss was skeptical. "An amusing notion, but practically not feasible. The reading of minds, the act of possession, televoyance, similar interplay requires psychic congruence as a basic condition. The minds must be able to become identities at some particular stratum. Unless there is sympathy, there is no linkage. A tree is at opposite poles from a man; the images of tree and man are incommensurable. Hence, anything more than the most trifling flicker of comprehension must be a true miracle of jinxmanship."

Sam Salazar nodded mournfully. "I realize this, and at one time hoped to equip myself with the necessary identification."

"To do this you must become a vegetable. Certainly the tree will never become a man."

"So I reasoned," said Sam Salazar. "I went alone into a grove of trees, where I chose a tall conifer. I buried my feet in the mold, I stood silent and naked—in the sunlight, in the rain; at dawn, noon, dusk, midnight. I closed my mind to man-thoughts, I closed my eyes to vision, my ears to sound. I took no nourishment except from rain and sun. I sent roots forth from my feet and branches from my torso. Thirty hours I stood, and two days later, another thirty hours, and after two days another thirty hours. I made myself a tree, as nearly as possible to one of flesh and blood."

Hein Huss gave the great inward gurgle which signalized his amusement. "And you achieved sympathy?"

"Nothing useful," Sam Salazar admitted. "I felt something of the tree's sensations—the activity of light, the peace of dark, the coolness of rain. But visual and auditory experience—nothing. However, I do not regret the trial. It was a useful discipline."

"An interesting effort, even if inconclusive. The idea is by no means of startling originality, but the empiricism—to use an archaic word—of your method is bold, and no doubt antagonized Isak Comandore, who has no patience with the superstitions of our ancestors. I suspect

that he harangued you against frivolity, metaphysics and inspirationalism."

"True," said Sam Salazar. "He spoke at length."

"You should take the lesson to heart. Isak Comandore is sometimes unable to make the most obvious truth seem credible. However I cite you the example of Lord Faide, who considers himself an enlightened man, free from superstition. Still he rides in his feeble car, he carries a pistol sixteen hundred years old, he relies on Hellmouth to protect Faide Keep."

"Perhaps — unconsciously — he longs for the old magical times," suggested Sam Salazar thoughtfully.

"Perhaps," agreed Hein Huss. "And you do likewise?"

Sam Salazar hesitated. "There is an aura of romance, a kind of wild grandeur to the old days— But of course," he added quickly, "mysticism is no substitute for orthodox logic."

"Naturally not," agreed Hein Huss. "Now go; I must consider the events of tomorrow."

Sam Salazar departed, and Hein Huss, rumbling and groaning, hoisted himself to his feet. He went to the flap of his tent, surveyed the camp. All now was quiet. The fires were embers, the warriors lay in the pits they had cut into the moss. To north and south spread the woodlands. Among the trees and out on the downs were faint flickering luminosities, where the First Folk gathered spore-pods from the moss.

Hein Huss became aware of a nearby personality. He turned his head and saw approaching the shrouded form of Jinxman Enterlin, who concealed his face, who spoke only in whispers, who disguised his natural gait with a stiff stiltlike motion. By this means he hoped to reduce his vulnerability to hostile jinxmanship. The admission carelessly let fall of failing eyesight, of stiff joints, forgetfulness, melancholy, nausea: such information might be of critical significance in controversy by hoodoo. Jinxmen therefore maintained the pose of absolute health and virility, even though they must grope for blindness or limp doubled up from cramps.

Hein Huss called out to Enterlin, lifted back the flap to the tent. Enterlin entered; Huss went to the cabinet, brought forth a flask, poured liquor into a pair of stone cups. "A cordial only, free of overt significance."

"Good," whispered Enterlin, selecting the cup farthest from him. "After all, we jinxmen must relax into the guise of men from time to time." Turning his back on Huss, he introduced the cup through the folds of his hood, drank. "Refreshing," he whispered. "We need refreshment; tomorrow we must work."

Huss issued his reverberating chuckle. "Tomorrow Isak Comandore matches demons with Anderson Grimes. We others perform only subsidiary duties."

Enterlin seemed to make a quizzical inspection of Hein Huss through

the black gauze before his eyes. "Comandore will relish this opportunity. His vehemence oppresses me, and his is a power which feeds on success. He is a man of fire, you are a man of ice."

"Ice quenches fire."

"Fire sometimes melts ice."

Hein Huss shrugged. "No matter. I grow weary. Time has passed all of us by. Only a moment ago a young apprentice showed me to myself."

"As a powerful jinxman, as Head Jinxman to the Faides, you have cause for pride."

Hein Huss drained the stone cup, set it aside. "No. I see myself at the top of my profession, with nowhere else to go. Only, Sam Salazar the apprentice thinks to search for more universal lore; he comes to me for counsel, and I do not know what to tell him."

"Strange talk, strange talk!" whispered Enterlin. He moved to the flap of the tent. "I go now," he whispered. "I go to walk on the downs. Perhaps I will see the future."

"There are many futures."

Enterlin rustled away and was lost in the dark. Hein Huss groaned and grumbled, took himself to his couch, where he instantly fell asleep.

II

The night passed. The sun, flickering with films of pink and green, lifted over the horizon. The new planting of the First Folk was silhouetted, a sparse stubble of saplings, against the green and lavender sky. The troops broke camp with practiced efficiency. Lord Faide marched to his car, leaped within; the car sagged under his weight. He pushed a button, the car drifted forward, heavy as a waterlogged timber.

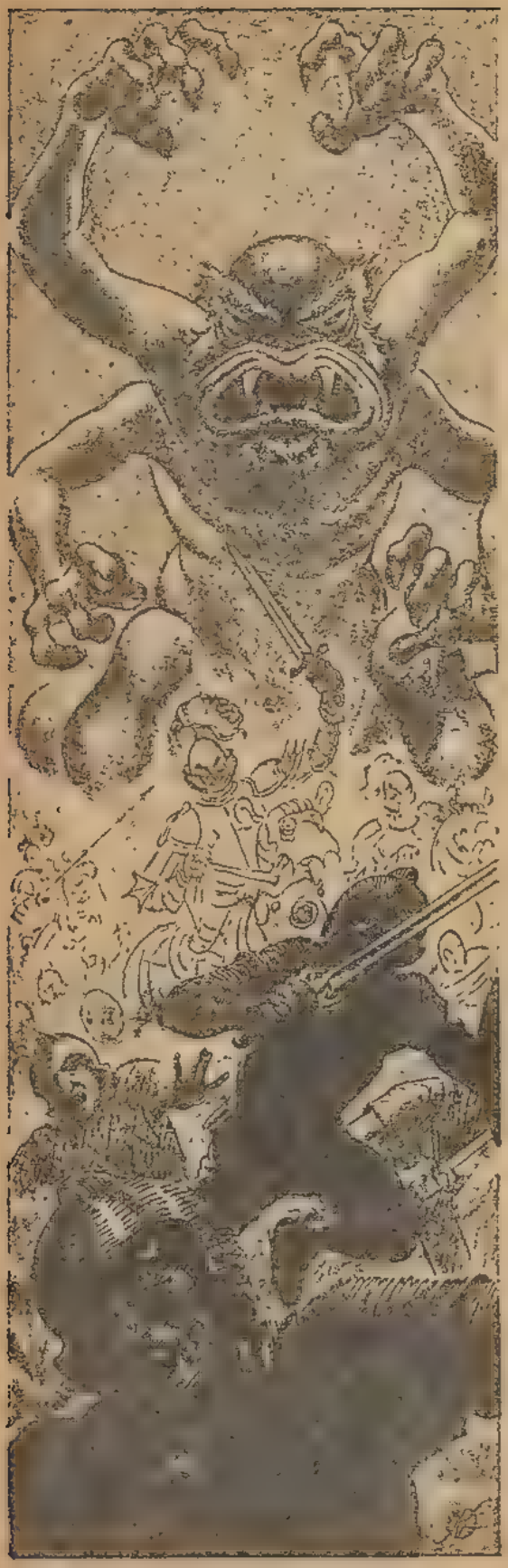
A mile from the new planting he halted, sent a messenger back to the wagons of the jinxmen. Hein Huss walked ponderously forward, followed by Isak Comandore, Adam McAdam and Enterlin. Lord Faide spoke to Hein Huss. "Send someone to speak to the First Folk. Inform them we wish to pass, offering them no harm, but that we will react savagely to any hostility."

"I will go myself," said Hein Huss. He turned to Comandore. "Lend me, if you will, your brash young apprentice. I can put him to good use."

"If he unmasks a nettle-trap by blundering into it, his first useful deed will be done," said Comandore. He signaled to Sam Salazar, who came reluctantly forward. "Walk in front of Head Jinxman Hein Huss that he may encounter no traps or scythes. Take a staff to probe the moss."

Without enthusiasm Sam Salazar borrowed a lance from one of the foot soldiers. He and Huss set forth, along the low rise which previously had separated North from South Wildwood. Occasionally outcroppings of stone penetrated the cover of moss; here and there grew bayberry trees, clumps of tar-plant, ginger-tea and rosewort.

A half-mile from the planting



Huss halted. "Now take care, for here the traps will begin. Walk clear of hummocks, these often conceal swing-scythes; avoid moss which shows a pale blue, this is dying or sickly and may cover a deadfall or a nettle-trap."

"Why cannot you locate the traps by clairvoyance?" asked Sam Salazar in a rather sullen voice. "It appears an excellent occasion for the use of these faculties."

"The question is natural," said Hein Huss with composure. "However you must know that when a jinxman's own profit or security is at stake his emotions play tricks on him. I would see traps everywhere and would never know whether clairvoyance or fear prompted me. In this case, that lance is a more reliable instrument than my mind."

Sam Salazar made a salute of understanding and set forth, with Hein Huss stumping behind him. At first he prodded with care, uncovering two traps, then advanced more jauntily; so swiftly indeed that Huss called out in exasperation, "Caution, unless you court death!"

Sam Salazar obligingly slowed his pace. "There are traps all around us, but I detect the pattern, or so I believe."

"Ah ha, you do? Reveal it to me, if you will. I am only Head Jinxman, and ignorant."

"Notice. If we walk where the spore-pods have recently been harvested, then we are secure."

Hein Huss grunted. "Forward then. Why do you dally? We must

do battle at Ballant Keep today."

Two hundred yards further, Sam Salazar stopped short. "Go on, boy, go on!" grumbled Hein Huss.

"The savages threaten us. You can see them just inside the planting. They hold tubes which they point toward us."

Hein Huss peered, then raised his head and called out in the sibilant language of the First Folk.

A moment or two passed, then one of the creatures came forth, a naked humanoid figure, ugly as a demon-mask. Foam-sacs bulged under its arms, orange-lipped foam-vents pointed forward. Its back was wrinkled and loose, the skin serving as a bellows to blow air through the foam-sacs. The fingers of the enormous hands ended in chisel-shaped blades, the head was sheathed in chitin. Billion-faceted eyes swelled from either side of the head, glowing like black opals, merging without definite limit into the chitin. This was a representative of the original inhabitants of the planet, who until the coming of man had inhabited the downs, burrowing in the moss, protecting themselves behind masses of foam exuded from the under-arm sacs.

The creature wandered close, halted. "I speak for Lord Faide of Faide Keep," said Huss. "Your planting bars his way. He wishes that you guide him through, so that his men do not damage the trees, or spring the traps you have set against your enemies."

"Men are our enemies," responded the autochthon. "You may spring as many traps as you care to; that is their purpose." It backed away.

"One moment," said Hein Huss sternly. "Lord Faide must pass. He goes to battle Lord Ballant. He does not wish to battle the First Folk. Therefore it is wise to guide him across the planting without hindrance."

The creature considered a second or two. "I will guide him." He stalked across the moss toward the war party.

Behind followed Hein Huss and Sam Salazar. The autochthon, legs articulated more flexibly than a man's, seemed to weave and wander, occasionally pausing to study the ground ahead.

"I am puzzled," Sam Salazar told Hein Huss. "I cannot understand the creature's actions."

"Small wonder," grunted Hein Huss. "He is one of the First Folk, you are human. There is no basis for understanding."

"I disagree," said Sam Salazar seriously.

"Eh?" Hein Huss inspected the apprentice with vast disapproval. "You engage in contention with me, Head Jinxman Hein Huss?"

"Only in a limited sense," said Sam Salazar. "I see a basis for understanding with the First Folk in our common ambition to survive."

"A truism," grumbled Hein Huss. "Granting this community of interests with the First Folk, what is your perplexity?"

"The fact that it first refused, then

agreed to conduct us across the planting."

Hein Huss nodded. "Evidently the information which intervened, that we go to fight at Ballant Keep, occasioned the change."

"This is clear," said Sam Salazar. "But think . . ."

"You exhort me to think?" roared Hein Huss.

". . . Here is one of the First Folk, apparently without distinction, who makes an important decision instantly. Is he one of their leaders? Do they live in anarchy?"

"It is easy to put questions," Hein Huss said gruffly. "It is not as easy to answer them."

"In short—"

"In short, I do not know. In any event they are pleased to see us killing one another."

III

The passage through the planting was made without incident. A mile to the east the autochthon stepped aside and without formality returned to the forest. The war party, which had been marching in single file, regrouped into its usual formation. Lord Faide called Hein Huss and made the unusual gesture of inviting him up into the seat beside him. The ancient car dipped and sagged; the power-mechanism whined and chattered. Lord Faide, in high good spirits, ignored the noise. "I feared that we might be forced into a time-consuming wrangle. What of Lord Ballant? Can you read his thoughts?"

Hein Huss cast his mind forth. "Not clearly. He knows of our passage. He is disturbed."

Lord Faide laughed sardonically. "For excellent reason! Listen now, I will explain the plan of battle so that all may co-ordinate their efforts."

"Very well."

"We approach in a wide line. Ballant's great weapon is of course Volcano. A decoy must wear my armor and ride in the lead. The yellow-haired apprentice is perhaps the most expendable member of the party. In this way we will learn the potentialities of Volcano. Like our own Hellmouth, it was built to repel vessels from space and cannot command the ground immediately under the keep. Therefore we will advance in dispersed formation, to regroup two hundred yards from the keep. At this point the jinxmen will impel Lord Ballant forth from the keep. You no doubt have made plans to this end."

Hein Huss gruffly admitted that such was the case. Like other jinxmen, he enjoyed the pose that his power sufficed for extemporaneous control of any situation.

Lord Faide was in no mood for niceties and pressed for further information. Grudging each word, Hein Huss disclosed his arrangements. "I have prepared certain influences to discomfit the Ballant defenders and drive them forth. Jinxman Enterlin will sit at his cabinet, ready to retaliate if Lord Ballant orders a spell against you. Anderson

Grimes undoubtedly will cast a demon—probably Everid—into the Ballant warriors; in return, Jinxman Comandore will possess an equal or a greater number of Faide warriors with the demon Keyril, who is even more ghastly and horrifying."

"Good. What more?"

"There is need for no more, if your men fight well."

"Can you see the future? How does today end?"

"There are many futures. Certain jinxmen—Enterlin for instance—profess to see the thread which leads through the maze; they are seldom correct."

"Call Enterlin here."

Hein Huss rumbled his disapproval. "Unwise, if you desire victory over Ballant Keep."

Lord Faide inspected the massive jinxman from under his black saturnine brows. "Why do you say this?"

"If Enterlin foretells defeat, you will be dispirited and fight poorly. If he predicts victory, you become overconfident and likewise fight poorly."

Lord Faide made a petulant gesture. "The jinxmen are loud in their boasts until the test is made. Then they always find reasons to retract, to qualify."

"Ha ha!" barked Hein Huss. "You expect miracles, not honest jinxmanship. I spit—" he spat. "I predict that the spittle will strike the moss. The probabilities are high. But an insect might fly in the way. One of the First Folk might raise through the moss. The chances are slight. In the next instant there is only one future. A minute hence there are four futures. Five minutes hence, twenty futures. A billion futures could not express all the possibilities of tomorrow. Of these billion, certain are more probable than others. It is true that these probable futures sometimes send a delicate influence into the jinxman's brain. But unless he is completely impersonal and disinterested, his own desires overwhelm this influence. Enterlin is a strange man. He hides himself, he has no appetites. Occasionally his auguries are exact. Nevertheless I advise against consulting him. You do better to rely on the practical and real uses of jinxmanship."

Lord Faide said nothing. The column had been marching along the bottom of a low swale; the car had been sliding easily down-slope. Now they came to a rise, and the power-mechanism complained so vigorously that Lord Faide was compelled to stop the car. He considered. "Once over the crest we will be in view of Ballant Keep. Now we must disperse. Send the least valuable man in your troupe forward—the apprentice who tested out the moss. He must wear my helm and corselet and ride in the car."

Hein Huss alighted, returned to the wagons and presently Sam Salazar came forward. Lord Faide eyed the round florid face with distaste. "Come close," he said crisply. Sam Salazar obeyed. "You will now ride in my place," said Lord Faide. "No-

tice carefully. This rod impels a forward motion. This arm steers—to right, to left. To stop, return the rod to its first position."

Sam Salazar pointed to some of the other arms, toggles, switches and buttons. "What of these?"

"They are never used."

"And these dials, what is their meaning?"

Lord Faide curled his lip, on the brink of one of his quick furies. "Since their use is unimportant to me, it is twenty times unimportant to you. Now. Put this cap on your head, and this helmet. See to it that you do not sweat."

Sam Salazar gingerly settled the magnificent black and green crest of Faide on his head, with a cloth cap underneath.

"Now this corselet."

The corselet was constructed of green and black metal sequins, with a pair of scarlet dragon-heads at either side of the breast.

"Now the cloak." Lord Faide flung the black cloak over Sam Salazar's shoulders. "Do not venture too close to Ballant Keep. Your purpose is to attract the fire of Volcano. Maintain a lateral motion around the keep, outside of dart range. If you are killed by a dart, the whole purpose of the deception is thwarted."

"You prefer me to be killed by Volcano?" inquired Sam Salazar.

"No. I wish to preserve the car and the crest. These are relics of great value. Evade destruction by all means possible. The ruse probably will deceive no one; but if it does, and if it draws the fire of Volcano, I must sacrifice the Faide car. Now—sit in my place."

Sam Salazar climbed into the car, settled himself on the seat.

"Sit straight," roared Lord Faide. "Hold your head up! You are simulating Lord Faide! You must not appear to slink!"

Sam Salazar heaved himself erect in the seat. "To simulate Lord Faide most effectively, I should walk among the warriors, with someone else riding in the car."

Lord Faide glared, then grinned sourly. "No matter. Do as I have commanded."

IV

Sixteen hundred years before, with war raging through space, a group of space captains, their home-bases destroyed, had taken refuge on Pangborn. To protect themselves against vengeful enemies, they built great forts armed with weapons from the dismantled spaceships.

The wars receded, Pangborn was forgotten. The newcomers drove the First Folk into the forests, planted and harvested the river valleys. Ballant Keep, like Faide Keep, Castle Cloud, Boghoten and the rest, overlooked one of these valleys. Four squat towers of a dense black substance supported an enormous parasol roof, and were joined by walls two thirds as high as the towers. At the peak of the roof a cupola housed Volcano, the weapon corresponding to Faide's Hellmouth.

The Faide war party advancing over the rise found the great gates already secure, the parapets between the towers thronged with bowmen. According to Lord Faide's strategy, the war party advanced on a broad front. At the center rode Sam Salazar, resplendent in Lord Faide's armor. He made, however, small effort to simulate Lord Faide. Rather than sitting proudly erect, he crouched at the side of the seat, the crest canted at an angle. Lord Faide watched with disgust. Apprentice Salazar's reluctance to be demolished was understandable; if his impersonation failed to convince Lord Ballant, at least the Faide ancestral car might be spared. For a certainty Volcano was being manned; the Ballant gun-tender could be seen in the cupola, and the snout protruded at a menacing angle.

Apparently the tactic of dispersal, offering no single tempting target was effective. The Faide war party advanced quickly to a point two hundred yards from the keep, below Volcano's effective field, without drawing fire; first the knights, then the foot soldiers, then the rumbling wagons of the magicians. The slow-moving Faide car was far outdistanced; any doubt as to the nature of the ruse must now be extinguished.

Apprentice Salazar, disliking the isolation, and hoping to increase the speed of the car, twisted one of the other switches, then another. From under the floor came a thin screeching sound; the car quivered and began to rise. Sam Salazar peered over the side, threw out a leg to jump. Lord Faide ran forward, gesturing and shouting. Sam Salazar hastily drew back his leg, returned the switches to their previous condition. The car dropped like a rock. He snapped the switches up again, cushioning the fall.

"Get out of that car!" roared Lord Faide. He snatched away the helm, dealt Sam Salazar a buffet which toppled him head over heels. "Out of the armor; back to your duties!"

Sam Salazar hurried to the jinxmen's wagons where he helped erect Isak Comandore's black tent. Inside the tent a black carpet with red and yellow patterns was laid; Comandore's cabinet, his chair and his chest were carried in, and incense set burning in a censer. Directly in front of the main gate Hein Huss superintended the assembly of a rolling stage forty feet tall and sixty feet long, the surface concealed from Ballant Keep by a tarpaulin.

Meanwhile Lord Faide had dispatched an emissary, enjoining Lord Ballant to surrender. Lord Ballant delayed his response, hoping to delay the attack as long as possible. If he could maintain himself a day and a half, reinforcements from Gisborne Keep and Castle Cloud might force Lord Faide to retreat.

Lord Faide waited only until the jinxmen had completed their preparations, and sent another messenger, offering two more minutes in which to surrender.

One minute passed, two minutes.

The envoys turned on their heels, marched back to the camp.

Lord Faide spoke to Hein Huss. "You are prepared?"

"I am prepared," rumbled Hein Huss.

"Drive them forth."

Huss raised his arm; the tarpaulin dropped from the face of his great display, to reveal a painted representation of Ballant Keep.

Huss retired to his tent, pulled the flaps together. Braziers burnt fiercely, illuminating the faces of Adam McAdam, eight cabalmen and six of the most advanced spellbinders. Each worked at a bench supporting several dozen dolls and a small glowing brazier. The cabalmen and spellbinders worked with dolls representing Ballant men-at-arms; Huss and Adam McAdam employed simulacra of the Ballant knights. Lord Ballant would not be hoodooed unless he ordered a jinx against Lord Faide—a courtesy the keep-lords extended each other.

Huss called out. "Sebastian!"

Sebastian, one of Huss' spellbinders, waiting at the flap to the tent, replied. "Ready, sir."

"Begin the display."

Sebastian ran to the staging, struck fire to a fuse. Watchers inside Ballant Keep saw the depicted keep take fire. Flame erupted from the windows, the roof glowed and crumbled. Inside the tent the two jinxmen, the cabalmen and the spellbinders methodically took dolls, dipped them into the heat of the braziers, concentrating, reaching out for the mind of the man whose doll they burnt. Within the keep men became uneasy. Many began to imagine burning sensations, which became more severe as their minds grew more sensitive to the idea of fire. Lord Ballant noted the uneasiness. He signaled to his chief jinxman Anderson Grimes. "Begin the counter-spell."

Down the front of the keep unrolled a display even larger than Hein Huss', depicting a hideous beast. It stood on four legs, and was shown picking up two men in a pair of hands, biting off their heads. Grimes' cabalmen meanwhile took up dolls representing the Faide warriors, inserted them into models of the depicted beast, closed the hinged jaws, while projecting ideas of fear and disgust. And the Faide warriors, staring at the depicted monster, felt a sense of horror and weakness.

Inside Huss' tent the braziers reeked and dolls smoked. Eyes stared, brows glistened. From time to time one of the workers gasped—signaling the entry of his projection into an enemy mind. Within the keep warriors began to mutter, to slap at burning skin, to eye each other fearfully, noting each other's symptoms. Finally one cried out, and tore at his armor. "I burn! The cursed witches burn me!" His pain aggravated the discomfort of the others; there was a growing sound throughout the keep.

Lord Ballant's oldest son, his mind penetrated by Hein Huss himself, struck his shield with his mailed fist. "They burn me! They burn us all! Better to fight than burn!"

"Fight! Fight!" came the voices of the tormented men.

Lord Ballant looked around at the twisted faces, some displaying blisters, scald-marks. "Our own spell terrifies them, wait yet a moment!" he pleaded.

His brother called hoarsely, "It is not your belly that Hein Huss toasts in the flames, it is mine! We cannot win a battle of hoodoos; we must win a battle of arms!"

Lord Ballant cried desperately. "Wait, our own effects are working! They will flee in terror; wait, wait!"

His cousin tore off his corselet. "It's Hein Huss! I feel him! My leg's in the fire, the devil laughs at me. Next my head, he says. Fight, or I go forth to fight alone!"

"Very well," said Lord Ballant in a fateful voice. "We go forth to fight. First—the beast goes forth. Then we follow, and smite them in their terror."

The gates to the keep swung suddenly wide. Out sprang what appeared to be the depicted monster: legs moving, arms waving, eyes rolling, issuing evil sounds. Normally the Faide warriors would have seen the monster for what it was: a model carried on the backs of three horses. But their minds had been influenced, they had been infected with horror; they drew back with arms hanging flaccid. From behind the monster, the Ballant knights galloped, followed by the Ballant foot soldiers. The charge gathered momentum, tore into the Faide center. Lord Faide bellowed orders; discipline asserted itself. The Faide knights disengaged, divided into three platoons, engulfed the Ballant charge, while the foot soldiers poured darts into the advancing ranks.

There was the clatter and surge of battle; Lord Ballant, seeing that his sally had failed to overwhelm the Faide forces, and thinking to conserve his forces, ordered a retreat. In good order the Ballant warriors began to back up toward the keep. The Faide knights held close contact, hoping to win to the courtyard. Close behind came a heavily loaded wagon pushed by armored horses, to be wedged against the gate.

Lord Faide called an order; a reserve platoon of ten knights charged from the side, thrust behind the main body of Ballant horsemen, rode through the foot soldiers, fought into the keep, cut down the gate-tenders.

Lord Ballant bellowed to Anderson Grimes. "They have won inside; quick with your cursed demon! If he can help us, let him do so now!"

"Demon-possession is not a matter of an instant," muttered the jinxman. "I need time."

"You have no time! Ten minutes and we're all dead!"

"I will do my best. Everid, Everid, come swift!"

He hastened into his workroom, donned his demon-mask, tossed handful after handful of incense into the brazier. Against one wall stood a great form: black, slit-eyed, noseless. Great white fangs hung from its upper palate; it stood on heavy

bent legs, arms reached forward to grasp. Anderson Grimes swallowed a cup of syrup, paced slowly back and forth. A moment passed.

"Grimes!" came Ballant's call from outside. "Grimes!"

A voice spoke. "Enter without fear."

Lord Ballant, carrying his ancestral side arm, entered. He drew back with an involuntary sound. "Grimes!" he whispered.

"Grimes is not here," said the voice. "I am here. Enter."

Lord Ballant came forward stiff-legged. The room was dark except for the feeble glimmer of the brazier. Anderson Grimes crouched in a corner, head bowed under his demon-mask. The shadows seemed to twist and pulse with shapes and faces, forms struggling to become solid. The black image seemed to vibrate with life.

"Bring in your warriors," said the voice. "Bring them in five at a time, bid them look only at the floor until commanded to raise their eyes."

Lord Ballant retreated; there was no sound in the room.

A moment passed; then five limp and exhausted warriors filed into the room, eyes low.

"Look slowly up," said the voice. "Look at the orange fire. Breathe deeply. Then look at me. I am Everid, the demon of Hate. Look at me. Who am I?"

"You are Everid, Demon of Hate," quavered the warriors.

"I stand all around you, in a dozen forms. . . . I come closer. Where am I?"

"You are close."

"Now, I am you. We are together."

There was a sudden quiver of motion. The warriors stood straighter, their faces distorted.

"Go forth," said the voice. "Go quietly into the court. In a few minutes we march forth to slay."

The five stalked forth. Five more entered.

Outside the wall the Ballant knights had retreated as far as the gate; within, seven Faide knights still survived, and with their backs to the wall held the Ballant warriors away from the gate mechanism.

In the Faide camp Huss called to Comandore. "Everid is walking. Bring forth Keyril."

"Send the men," came Comandore's voice, low and harsh. "Send the men to me. I am Keyril."

Within the keep twenty warriors came marching into the courtyard. Their steps were cautious, tentative, slow. Their faces had lost individuality, they were twisted and distorted, curiously alike.

"Bewitched!" whispered the Ballant soldiers, drawing back. The seven Faide knights watched with sudden fright. But the twenty warriors, paying them no heed, marched out the gate. The Ballant knights parted; for an instant there was a lull in the fighting. The twenty sprang like tigers. Their swords glistened, twinkling in water-bright arcs. They crouched, jerked, jumped;

Faide arms, legs, heads were hewed off. The twenty were cut and battered, but the blows seemed to have no effect.

The Faide attack faltered, collapsed. The knights, whose armor was no protection against the demoniac swords, retreated. The twenty possessed warriors raced out into the open, toward the foot soldiers, running with great strides, slashing and rending. The Faide foot soldiers fought for a moment, then they too gave way and turned to flee.

From behind Comandore's tent appeared thirty Faide warriors, marching stiffly, slowly. Like the Ballant twenty, their faces were alike—but between the Everid-possessed and the Keyril-possessed was the difference between the face of Everid and the face of Keyril.

Keyril and Everid fought, using the men as weapons, without fear, retreat, or mercy. Hack, chop, cut. Arms, legs, sundered torsos. Bodies fought headless for moments before collapsing. Only when a body was minced, hacked to bits, did the demoniac vitality depart. Presently there were no more men of Everid, and only fifteen men of Keyril. These hopped and limped and tumbled toward the keep where Faide knights still held the gate. The Ballant knights met them in despair, knowing that now was the decisive moment. Leaping, leering from chopped faces, slashing from tireless arms, the warriors cut a hole into the iron. The Faide knights, roaring victory cries, plunged after. Into the court-

yard surged the battle, and now there was no longer doubt of the outcome. Ballant Keep was taken.

Back in his tent Isak Comandore took a deep breath, shuddered, flung down his demon-mask. In the courtyard the twelve remaining warriors dropped in their tracks, twitched, gasped, gushed blood and died.

Lord Ballant, in the last gallant act of a gallant life, marched forth brandishing his ancestral side arm. He aimed across the bloody field at Lord Faide, pulled the trigger. The weapon spewed a brief gout of light; Lord Faide's skin prickled and hair rose from his head. The weapon crackled, turned cherry-red and melted. Lord Ballant threw down the weapon, drew his sword, marched forth to challenge Lord Faide.

Lord Faide, disinclined to unnecessary combat, signaled to his soldiers. A flight of darts ended Lord Ballant's life, saving him the discomfort of formal execution.

There was no further resistance. The Ballant defenders threw down their arms, marched grimly out to kneel before Lord Faide, while inside the keep the Ballant women gave themselves to mourning and grief.

V

Lord Faide had no wish to linger at Ballant Keep, for he took no relish in his victories. Inevitably a thousand decisions had to be made. Six of the closest Ballant kinsmen were summarily stabbed, and the title declared defunct. Others of the clan were offered a choice: an oath of lifelong fealty together with a moderate ransom, or death. Only two, eyes blazing hate, chose death, and were instantly stabbed.

Lord Faide had now achieved his ambition. For over a thousand years the keep-lords had struggled for power; now one, now another gaining ascendancy. None before had ever extended his authority across the entire continent—which meant control of the planet, since all other land was either sun-parched rock or eternal ice. Ballant Keep had long thwarted Lord Faide's drive to power: now—success, total and absolute. It still remained to chastise the lords of Castle Cloud and Gisborne, both of whom, seeing opportunity to overwhelm Lord Faide, had ranged themselves behind Lord Ballant. But these were matters which might well be assigned to Hein Huss.

Lord Faide, for the first time in his life, felt a trace of uncertainty. Now what? No real adversaries remained. The First Folk must be whipped back, but here was no great problem; they were numerous, but no more than savages. He knew that dissatisfaction and controversy would ultimately arise among his kinsmen and allies. Inaction and boredom would breed irritability; idle minds would calculate the pros and cons of mischief. Even the most loyal would remember the campaigns with nostalgia and long for the excitement, the release, the license, of warfare. Somehow he must find means to absorb the energy of so

many active and keyed-up men. How and where, this was the problem. The construction of roads? New farmland claimed from the downs? Yearly tournaments-at-arms? Lord Faide frowned at the inadequacy of his solution, but his imagination was impoverished by the lack of tradition. The original settlers of Pangborn had been warriors, and had brought with them a certain amount of practical rule-of-thumb knowledge, but little else. The tales they passed down the generations described the great spaceships which moved with magic speed and certainty, the miraculous weapons, the wars in the void, but told nothing of human history or civilized achievement. And so Lord Faide, full of power and success, but with no goal toward which to turn his strength, felt more morose and saturnine than ever.

He gloomily inspected the spoils from Ballant Keep. They were of no great interest to him. Ballant's ancestral car was no longer used, but displayed behind a glass case. He inspected the weapon Volcano, but this could not be moved. In any event it was useless, its magic lost forever. Lord Faide now knew that Lord Ballant had ordered it turned against the Faide car, but that it had refused to spew its vaunted fire. Lord Faide saw with disdainful amusement that Volcano had been sadly neglected. Corrosion had pitted the metal, careless cleaning had twisted the exterior tubing, undoubtedly disminishing the potency of the magic. No such neglect at Faide Keep! Jambart the weapon-tender cherished Hellmouth with absolute devotion. Elsewhere were other ancient devices, interesting but useless—the same sort of curios which cluttered shelves and cases at Faide Keep. Peculiar, these ancient men! thought Lord Faide: at once so clever, yet so primitive and impractical. Conditions had changed; there had been enormous advances since the dark ages sixteen hundred years ago. For instance, the ancients had used intricate fetishes of metal and glass to communicate with each other. Lord Faide need merely voice his needs; Hein Huss could project his mind a hundred miles, to see, to hear, to relay Lord Faide's words. The ancients had contrived dozens of such objects, but the old magic had worn away and they never seemed to function. Lord Ballant's side arm had melted, after merely stinging Lord Faide. Imagine a troop armed thus trying to cope with a platoon of demon-possessed warriors! Slaughter of the innocents!

Among the Ballant trove Lord Faide noted a dozen old books and several reels of microfilm. The books were worthless, page after page of incomprehensible jargon; the microfilm was equally undecipherable. Again Lord Faide wondered skeptically about the ancients. Clever of course, but to look at the hard facts, they were little more advanced than the First Folk; neither had facility with telepathy or voyance or demon-command. And the magic of the an-

cients: might there not be a great deal of exaggeration in the legends? Volcano, for instance. A joke. Lord Faide wondered about his own Hellmouth. But no—surely Hellmouth was more trustworthy; Jambart cleaned and polished the weapon daily, and washed the entire cupola with vintage wine every month. If human care could induce faithfulness, then Hellmouth was ready to defend Faide Keep!

Now there was no longer need for defense. Faide was supreme. Considering the future, Lord Faide made a decision. There should no longer be keep-lords on Pangborn; he would abolish the appellation. Habitancy of the keeps would gradually be transferred to trusted bailiffs on a yearly basis. The former lords would be moved to comfortable but indefensible manor houses, with the maintenance of private troops forbidden. Naturally they must be allowed jinxmen, but these would be made accountable to himself — perhaps through some sort of licensing provision. He must discuss the matter with Hein Huss. A matter for the future, however. Now he merely wished to settle affairs and return to Faide Keep.

There was little more to be done. The surviving Ballant kinsmen he sent to their homes after Hein Huss had impregnated fresh dolls with their essences. Should they default on their ransoms, a twinge of fire, a few stomach cramps would more than set them right. Ballant Keep itself Lord Faide would have liked to burn—but the material of the ancients was proof to fire. But in order to discourage any new pretenders to the Ballant heritage, Lord Faide ordered all the heirlooms and relics brought forth into the courtyard, and then, one at a time, in order of rank, he bade his men choose. Thus the Ballant wealth was distributed. Even the jinxmen were invited to choose, but they despised the ancient trinkets as works of witless superstition. The lesser spellbinders and apprentices rummaged through the leavings, occasionally finding an overlooked bauble or some anomalous implement. Isak Comandore was irritated to find Sam Salazar staggering under a load of the ancient books. "And what is your purpose with these?" he barked. "Why do you burden yourself with rubbish?"

Sam Salazar hung his head. "I have no definite purpose. Undoubtedly there was wisdom—or at least knowledge — among the ancients; perhaps I can use these symbols of knowledge to sharpen my own understanding."

Comandore threw up his hands in disgust. He turned to Hein Huss who stood nearby. "First he fancies himself a tree and stands in the mud; now he thinks to learn jinxmanship through a study of ancient symbols."

Huss shrugged. "They were men like ourselves, and, though limited, they were not entirely obtuse. A certain simian cleverness is required to fabricate these objects."

"Simian cleverness is no substitute

for sound jinxmanship," retorted Isak Comandore. "This is a point hard to overemphasize; I have drummed it into Salazar's head a hundred times. And now, look at him."

Huss grunted noncommittally. "I fail to understand what he hopes to achieve."

Sam Salazar tried to explain, fumbling for words to express an idea which did not exist. "I thought perhaps to decipher the writing, if only to understand what the ancients thought, and perhaps to learn how to perform one or two of their tricks."

Comandore rolled up his eyes. "What enemy bewitched me when I consented to take you as apprentice? I can cast twenty hoodoo in an hour, more than any of the ancients could achieve in a lifetime."

"Nevertheless," said Sam Salazar, "I notice that Lord Faide rides in his ancestral car, and that Lord Ballant sought to kill us all with Volcano."

"I notice," said Comandore with feral softness, "that my demon Keyril conquered Lord Ballant's Volcano, and that riding on my wagon I can outdistance Lord Faide in his car."

Sam Salazar thought better of arguing further. "True, Jinxman Comandore, very true. I stand corrected."

"Then discard that rubbish and make yourself useful. We return to Faide Keep in the morning."

"As you wish, Jinxman Comandore." Sam Salazar threw the books back into the trash.

VI

The Ballant clan had been dispersed, Ballant Keep was despoiled. Lord Faide and his men banqueted somberly in the great hall, tended by silent Ballant servitors.

Ballant Keep had been built on the same splendid scale as Faide Keep. The great hall was a hundred feet long, fifty feet wide, fifty feet high, paneled in planks sawed from pale native hardwood, rubbed and waxed to a rich honey color. Enormous black beams supported the ceiling; from these hung candelabra, intricate contrivances of green, purple and blue glass, knotted with ancient but still bright light-motes. On the far wall hung portraits of all the lords of Ballant Keep—one hundred and five grave faces in a variety of costumes. Below, a genealogical chart ten feet high detailed the descent of the Ballants and their connections with the other noble clans. Now there was a desolate air to the hall, and the hundred and five dead faces were meaningless and empty.

Lord Faide dined without joy, and cast dour side-glances at those of his kinsmen who reveled too gladly. Lord Ballant, he thought, had conducted himself only as he himself might have done under the same circumstances; coarse exultation seemed in poor taste, almost as if it were disrespect for Lord Faide himself. His followers were quick to catch his mood, and the banquet proceeded with greater decorum.

The jinxmen sat apart in a smaller

room to the side. Anderson Grimes, erstwhile Ballant Head Jinxman, sat beside Hein Huss, trying to put a good face on his defeat. After all, he had performed creditably against four powerful adversaries, and had no cause to feel a diminution of *mana*. The five jinxmen discussed the battle, while the cabalmen and spellbinders listened respectfully. The conduct of the demon-possessed troops occasioned the most discussion. Anderson Grimes readily admitted that his conception of Everid was a force absolutely brutal and blunt, terrifying in its indomitable vigor. The other jinxmen agreed that he undoubtedly succeeded in projecting these qualities; Hein Huss however pointed out that Isak Comandore's Keyril, as cruel and vigorous as Everid, also combined a measure of crafty malice, which tended to make the possessed soldier a more effective weapon.

Anderson Grimes allowed that this might well be the case, and that in fact he had been considering such an augmentation of Everid's characteristics.

"To my mind," said Huss, "the most effective demon should be swift enough to avoid the strokes of the brute demons, such as Keyril and Everid. I cite my own Dant as example. A Dant-possessed warrior can easily destroy a Keyril or an Everid, simply through his agility. In an encounter of this sort the Keyrils and Everids presently lose their capacity to terrify, and thus half the effect is lost."

Isak Comandore pierced Huss with a hot russet glance. "You state a presumption as if it were fact. I have formulated Keyril with sufficient craft to counter any such displays of speed. I firmly believe Keyril to be the most fearsome of all demons."

"It may well be," rumbled Hein Huss thoughtfully. He beckoned to a steward, gave instructions. The steward reduced the light a trifle. "Behold," said Hein Huss. "There is Dant. He comes to join the banquet." To the side of the room loomed the tiger-striped Dant, a creature constructed of resilient metal, with four terrible arms, and a squat black head which seemed all gaping jaw.

"Look," came the husky voice of Isak Comandore. "There is Keyril." Keyril was rather more humanoid and armed with a cutlass. Dant spied Keyril. The jaws gaped wider, it sprang to the attack.

The battle was a thing of horror; the two demons rolled, twisted, bit, frothed, uttered soundless shrieks, tore each other apart. Suddenly Dant sprang away, circled Keyril with dizzying speed, faster, faster; became a blur, a wild coruscation of colors that seemed to give off a high-pitched wailing sound, rising higher and higher in pitch. Keyril hacked brutally with his cutlass, then seemed to grow feeble and wan. The light which once had been Dant blazed white, exploded in a mental shriek; Keyril was gone and Isak Comandore lay moaning.

Hein Huss drew a deep breath,

wiped his face, looked about him with a complacent grin. The entire company sat rigid as stones, staring, all except the apprentice Sam Salazar, who met Hein Huss' glance with a cheerful smile.

"So," growled Huss, panting from his exertion, "you consider yourself superior to the illusion; you sit and smirk at one of Hein Huss' best efforts."

"No, no," cried Sam Salazar, "I mean no disrespect! I want to learn, so I watched you rather than the demons. What could they teach me? Nothing!"

"Ah," said Huss, mollified. "And what did you learn?"

"Likewise nothing," said Sam Salazar, "but at least I do not sit like a fish."

Comandore's voice came soft but crackling with wrath. "You see in me the resemblance to a fish?"

"I except you, Jinxman Comandore, naturally," Sam Salazar explained.

"Please go to my cabinet, Apprentice Salazar, and fetch me the doll that is your likeness. The steward will bring a basin of water, and we shall have some sport. With your knowledge of fish you perhaps can breathe under water. If not—you may suffocate."

"I prefer not, Jinxman Comandore," said Sam Salazar. "In fact, with your permission, I now resign your service."

Comandore motioned to one of his cabalmen. "Fetch me the Salazar doll. Since he is no longer my apprentice, it is likely indeed that he will suffocate."

"Come now, Comandore," said Hein Huss gruffly. "Do not torment the lad. He is innocent and a trifle addled. Let this be an occasion of placidity and ease."

"Certainly, Hein Huss," said Comandore. "Why not? There is ample time in which to discipline this upstart."

"Jinxman Huss," said Sam Salazar, "since I am now relieved of my duties to Jinxman Comandore, perhaps you will accept me into your service."

Hein Huss made noise of vast distaste. "You are not my responsibility."

"There are many futures, Hein Huss," said Sam Salazar. "You have said as much yourself."

Hein Huss looked at Sam Salazar with his water-clear eyes. "Yes, there are many futures. And I think that tonight sees the full amplitude of jinxmanship. . . . I think that never again will such power and skill gather at the same table. We shall die one by one and there shall be none to fill our shoes. . . . Yes, Sam Salazar. I will take you as apprentice. Isak Comandore, do you hear? This youth is now of my company."

"I must be compensated," growled Comandore.

"You have coveted my doll of Tharon Faide, the only one in existence. It is yours."

"Ah ha!" cried Isak Comandore leaping to his feet. "Hein Huss, I

salute you! You are generous indeed! I thank you and accept!"

Hein Huss motioned to Sam Salazar. "Move your effects to my wagon. Do not show your face again tonight."

Sam Salazar bowed with dignity and departed the hall.

The banquet continued, but now something of melancholy filled the room. Presently a messenger from Lord Faide came to warn all to bed, for the party returned to Faide Keep at dawn.

VII

The victorious Faide troops gathered on the heath before Ballant Keep. As a parting gesture Lord Faide ordered the great gate torn off the hinges, so that ingress could never again be denied him. But even after sixteen hundred years the hinges were proof to all the force the horses could muster, and the gates remained in place.

Lord Faide accepted the fact with good grace and bade farewell to his cousin Renfroy, whom he had appointed bailiff. He climbed into his car, settled himself, snapped the switch. The car groaned and moved forward. Behind came the knights and the foot soldiers, then the baggage train, laden with booty, and finally the wagons of the jinxmen.

Three hours the column marched across the mossy downs. Ballant Keep dwindled behind; ahead appeared North and South Wildwood, darkening all the sweep of the western horizon. Where once the break had existed, the First Folk's new planting showed a smudge lower and less intense than the old woodlands.

Two miles from the woodlands Lord Faide called a halt and signaled up his knights. Hein Huss laboriously dismounted from his wagon, came forward.

"In the event of resistance," Lord Faide told the knights, "do not be tempted into the forest. Stay with the column. And at all times be on your guard against traps."

Hein Huss spoke. "You wish me to parley with the First Folk once more?"

"No," said Lord Faide. "It is ridiculous that I must ask permission of savages to ride over my own land. We return as we came; if they interfere, so much the worse for them."

"You are rash," said Huss with simple candor.

Lord Faide glanced down at him with black eyebrows raised. "What damage can they do if we avoid their traps? Blow foam at us?"

"It is not my place to advise or to warn," said Hein Huss. "However, I point out that they exhibit a confidence which does not come from conscious weakness; also, that they carried tubes, apparently hollow grasswood shoots, which imply missiles."

Lord Faide nodded. "No doubt. The knights wear armor, the soldiers carry bucklers. It is not fit that I, Lord Faide of Faide Keep, choose my path to suit the whims of the

First Folk. This must be made clear, even if the exercise involves a dozen or so First Folk corpses."

"Since I am not a fighting man," remarked Hein Huss, "I will keep well to the rear, and pass only when the way is secure."

"As you wish." Lord Faide pulled down the visor of his helmet. "Forward."

The column moved toward the forest, along the previous track, which showed plain across the moss. Lord Faide rode in the lead, flanked by his brother Gethwin Faide and his cousin Mauve Dermont-Faide.

A half mile passed, and another. The forest was only a mile distant. Overhead the great sun rode at zenith; brightness and heat poured down; the air carried the oily scent of thorn and tarbush. The column moved on, more slowly; the only sound the clanking of armor, the muffled thud of hooves in the moss, the squeal of wagon wheels.

Lord Faide rose up in his car, watching for any sign of hostile preparation. A half mile from the planting, the forms of the First Folk, waiting in the shade along the forest's verge, became visible. Lord Faide ignored them, held a steady pace along the track they had traveled before.

The half mile became a quarter mile. Lord Faide turned to order the troops into single file, and was just in time to see a hole open suddenly into the moss and his brother Gethwin Faide drop from sight. There was a rattle, a thud, the howling of

the impaled horse, Gethwin's wild calls as the horse kicked and crushed him into the stakes. Mauve Dermont-Faide, riding beside Gethwin, could not control his own horse, which leaped aside from the pit and blundered upon a trigger. Up from the moss burst a tree trunk studded with foot-long thorns. It snapped, quick as a scorpion's tail; the thorns punctured Mauve Dermont-Faide's armor, his chest, whisked him from his horse to carry him suspended, writhing and screaming. The tip of the scythe pounded into Lord Faide's car, splintered against the hull. The car swung groaning through the air. Lord Faide clutched at the wind-screen to prevent himself from falling.

The column halted; several men ran to the pit, but Gethwin Faide lay twenty feet below, crushed under the horse. Others took Mauve Dermont-Faide down from the swaying scythe, but he, too, was dead.

Lord Faide's skin tingled with a gooseflesh of hate and rage. He looked toward the forest. The First Folk stood motionless. He beckoned to Bernard, sergeant of the foot soldiers. "Two men with lances to try out the ground ahead. All others ready with darts. At my signal spit the devils."

Two men came forward, and marching before Lord Faide's car, probed at the ground. Lord Faide settled in his seat. "Forward."

The column moved slowly toward the forest, every man tense and ready. The lances of the two men in the vanguard presently broke through the moss, to disclose a nettle-trap—a pit lined with nettles, each frond ripe with globes of acid. Carefully they probed out a path to the side, and the column filed around, each man walking in the other's tracks.

At Lord Faide's side now rode his two nephews, Scolford and Edwin. "Notice," said Lord Faide in a voice harsh and tight. "These traps were laid since our last passage; an act of malice."

"But why did they guide us through before?"

Lord Faide smiled bitterly. "They were willing that we should die at Ballant Keep. But we have disappointed them."

"Notice, they carry tubes," said Scolford.

"Blow-guns possibly," suggested Edwin.

Scolford disagreed. "They cannot blow through their gills, and certainly not through their foam-vents."

"No doubt we shall soon learn," said Lord Faide. He rose in his seat, called to the rear. "Ready with the darts!"

The soldiers raised their crossbows. The column advanced slowly, now only a hundred yards from the planting. The white shapes of the First Folk moved uneasily at the forest's edges. Several of them raised their tubes, seemed to sight along the length. They twitched their great hands.

One of the tubes was pointed toward Lord Faide. He saw a small black object leave the opening, flit

forward, gathering speed. He heard a hum, waxing to a rasping clicking flutter. He ducked behind the wind-screen; the projectile swooped in pursuit, struck the wind-screen like a thrown stone. It fell crippled upon the forward deck of the car—a heavy black insect like a wasp, its broken proboscis oozing ocher liquid, horny wings beating feebly, eyes like dumb-bells fixed on Lord Faide. With his mailed fist, he crushed the creature.

Behind him other wasps struck knights and men; Corex Faide-Battaro took the prong through his visor into the eye, but the armor of the other knights defeated the wasps. The foot soldiers lacked protection; the wasps half-buried themselves in flesh. The soldiers called out in pain, clawed away the wasps, squeezed the wounds. Corex Faide-Battaro toppled from his horse, ran blindly out over the heath, and after fifty feet fell into a trap. The stricken soldiers began to twitch, then fell on the moss, thrashed, leaped up to run with flapping arms, threw themselves in wild somersaults, forward, backward, foaming and thrashing.

In the forest the First Folk raised their tubes again. Lord Faide bellowed, "Spit the creatures! Bowmen, launch your darts!"

There came the twang of cross-bows, darts snapped at the quiet white shapes. A few staggered and wandered aimlessly away; most, however, plucked out the darts or ignored them. They took capsules from small sacks, put them to the end of their tubes.

"Beware the wasps!" cried Lord Faide. "Strike with your bucklers! Kill the cursed things in flight!"

The rasp of horny wings came again; certain of the soldiers found courage enough to follow Lord Faide's orders, and battered down the wasps. Others struck home as before; behind came another flight. The column became a tangle of struggling, crouching men.

"Footmen, retreat!" called Lord Faide furiously. "Footman back! Knights to me!"

The soldiers fled back along the track, taking refuge behind the baggage wagons. Thirty of their number lay dying, or dead, on the moss.

Lord Faide cried out to his knights in a voice like a bugle. "Dismount, follow slow after me! Turn your helmets, keep the wasps from your eyes! One step at a time, behind the car! Edwin, into the car beside me, test the footing with your lance. Once in the forest there are no traps! Then attack!"

The knights formed themselves into a line behind the car. Lord Faide drove slowly forward, his kinsman Edwin prodding the ground ahead. The First Folk sent out a dozen more wasps, which dashed themselves vainly against the armor. Then there was silence—cessation of sound, activity. The First Folk watched impassively as the knights approached, step by step.

Edwin's lance found a trap, the column moved to the side. Another trap—and the column was diverted from the planting toward the forest.

Step by step, yard by yard—another trap, another detour, and now the column was only a hundred feet from the forest. A trap to the left, a trap to the right: the safe path led directly toward an enormous heavy-branched tree. Seventy feet, fifty feet, then Lord Faide drew his sword.

"Prepare to charge, kill till your arms tire!"

From the forest came a crackling sound. The branches of the great tree trembled and swayed. The knights stared, for a moment frozen into place. The tree toppled forward; the knights madly tried to flee—to the rear, to the sides. Traps opened; the knights dropped upon sharp stakes. The tree fell; boughs cracked armored bodies like nuts; there was the hoarse yelling of pinned men, screams from the traps, the crackling subsidence of breaking branches. Lord Faide had been battered down into the car, and the car had been pressed groaning into the moss. Lord Faide's first instinctive act was to press the switch to rest position; then he staggered erect, clambered up through the boughs. A pale unhuman face peered at him; he swung his fist, crushed the faceted eye-bulge, and roaring with rage scrambled through the branches. Others of his knights were working themselves free, although almost a third were either crushed or impaled.

The First Folk came scrambling forward, armed with enormous thorns, long as swords. But now Lord Faide could reach them at close quarters. Hissing with vindictive joy he sprang into their midst, swinging his sword with both hands, as if demon-possessed. The surviving knights joined him and the ground became littered with dismembered First Folk. They drew back, slowly, without excitement. Lord Faide reluctantly called back his knights. "We must succor those still pinned, as many as still are alive."

As well as possible branches were cut away, injured knights drawn forth. In some cases the soft moss had cushioned the impact of the tree. Six knights were dead, another four crushed beyond hope of recovery. To these Lord Faide himself gave the *coup de grace*. Ten minutes further hacking and chopping freed Lord Faide's car, while the First Folk watched incuriously from the forest. The knights wished to charge once more, but Lord Faide ordered retreat. Without interference they returned the way they had come, back to the baggage train.

Lord Faide ordered a muster. Of the original war party, less than two-thirds remained. Lord Faide shook his head bitterly. Galling to think how easily he had been led into a trap! He swung on his heel, strode to the rear of the column, to the wagons of the magicians. The jinxmen sat around a small fire, drinking tea. "Which of you will hoodoo these white forest vermin? I want them dead—stricken with sickness, cramps, blindness, the most painful afflictions you can contrive!"

There was general silence. The jinxmen sipped their tea.

"Well?" demanded Lord Faide. "Have you no answer? Do I not make myself plain?"

Hein Huss cleared his throat, spat into the blaze. "Your wishes are plain. Unfortunately we cannot hoodoo the First Folk."

"And why?"

"There are technical reasons."

Lord Faide knew the futility of argument. "Must we slink home around the forest? If you cannot hoodoo the First Folk, then bring out your demon-masks! Possess me with your demons! I will march on the forest and chop out a path with my sword!"

"It is not for me to suggest tactics," grumbled Hein Huss.

"Go on, speak! I will listen."

"A suggestion has been put to me, which I will pass to you. Neither I nor the other jinxmen associate ourselves with it, since it recommends the crudest of physical principles."

"I await the suggestion," said Lord Faide.

"It is merely this. One of my apprentices tampered with your car, as you may remember."

"Yes, and I will see he gets the hiding he deserves."

"By some freak he caused the car to rise high into the air. The suggestion is this: that we load the car with as much oil as the baggage train affords, that we send the car aloft and let it drift over the planting. At a suitable moment, the occupant of the car will pour the oil over the trees, then hurl down a torch. The forest will burn. The First Folk will be at least discomfited; at best a large number will be destroyed."

Lord Faide slapped his hands together. "Excellent! Quickly, to work!" He called a dozen soldiers, gave them orders; four kegs of cooking oil, three buckets of pitch, six demijohns of spirit, were brought and lifted into the car. The engines grated and protested, and the car sagged almost to the moss.

Lord Faide shook his head sadly. "A rude use of the relic, but all in good purpose. Now, where is that apprentice? He must indicate which switches and which buttons he turned."

"I suggest," said Hein Huss, "that Sam Salazar be sent up with the car."

Lord Faide looked sidewise at Sam Salazar's round bland countenance. "An efficient hand is needed, a seasoned judgment. I wonder if he can be trusted?"

"I would think so," said Hein Huss, "inasmuch as it was Sam Salazar who evolved the scheme in the first place."

"Very well. In with you, apprentice! Treat my car with reverence! The wind blows away from us; fire this edge of the forest, in as long a strip as you can manage. The torch, where is the torch?"

The torch was brought and secured to the side of the car. "One more matter," said Sam Salazar. "I would like to borrow the armor of some

obliging knight, to protect myself from the wasps. Otherwise—"

"Armor!" bawled Lord Faide. "Bring armor!"

At last, fully accoutered and with visor down, Sam Salazar climbed into the car. He seated himself, peered intently at the buttons and switches. In truth he was not precisely certain as to which he had manipulated before. . . . He considered, reached forward, pushed, turned. The motors roared and screamed; the car shuddered, sluggishly rose into the air. Higher, higher, twenty feet, forty feet, sixty feet—a hundred, two hundred. The wind eased the car toward the forest; in the shade the First Folk watched. Several of them raised tubes, opened the shutters. The onlookers saw the wasps dart through the air, to dash against Sam Salazar's armor.

The car drifted over the trees, Sam Salazar began ladling out the oil. Below the First Folk stirred uneasily. The wind carried the car too far over the forest; Sam Salazar worked the controls, succeeded in guiding himself back. One keg was empty, and another; he tossed them out, presently emptied the remaining two, and the buckets of pitch. He soaked a rag in spirit, ignited it, threw it over the side, poured the spirit after.

The flaming rag fell into leaves. A crackle, fire blazed and sprang. The car now floated at a height of five hundred feet. Salazar poured over the remaining spirits, dropped the demijohns, guided the car back over the heath, and fumbling nervously with the controls, dropped the car in a series of swoops back to the moss.

Lord Faide sprang forward, clapped him on the shoulder. "Excellently done! The forest blazes like tinder!"

The men of Faide Keep stood back, rejoicing to see the flames soar and lick. The First Folk scurried back from the heat, waving their arms; foam of a peculiar purple color issued from their vents as they ran, small useless puffs discharged as if by accident or through excitement. The flames ate through first the forest, then spread into the new planting, leaping through the leaves.

"Prepare to march!" called Lord Faide. "We pass directly behind the flames, before the First Folk return."

Off in the forest the First Folk perched in the trees, blowing out foam in great puffs and billows, building a wall of insulation. The flames had eaten half across the new planting, leaving behind smoldering saplings.

"Forward! Briskly!"

The column moved ahead. Coughing in the smoke, eyes smarting, they passed under still blazing trees and came out on the western downs.

Slowly the column moved forward, led by a pair of soldiers prodding the moss with lances. Behind followed Lord Faide with the knights, then came the foot soldiers, then the rumbling baggage train, and finally the six wagons of the jinxmen.

A thump, a creak, a snap. A scythe

had broken up from the moss; the soldiers in the lead dropped flat; the scythe whipped past, a foot from Lord Faide's face. At the same time a plaintive cry came from the rear guard. "They pursue! The First Folk come!"

Lord Faide turned to inspect the new threat. A clot of First Folk, two hundred or more, came across the moss, moving without haste or urgency. Some carried wasp-tubes, others thorn-rapiers.

Lord Faide looked ahead. Another hundred yards should bring the army out upon safe ground; then he could deploy and maneuver. "Forward!"

The column proceeded, the baggage train and the jinxmen's wagons pressing close up against the soldiers. Behind and to the side came the First Folk, moving casually and easily.

At last Lord Faide judged they had reached secure ground. "Forward, now! Bring the wagons out, hurry now!"

The troops needed no urging; they trotted out over the heath, the wagons trundling after. Lord Faide ordered the wagons into a close double line, stationed the soldiers between, with the horses behind and protected from the wasps. The knights, now dismounted, waited in front.

The First Folk came listlessly forward, a formless clot. Blank white faces stared; huge hands grasped tubes and thorns; traces of the purplish foam showed at the lips of their under-arm orifices.

Lord Faide walked along the line of knights. "Swords ready. Allow them as close as they care to come. Then a quick charge." He motioned to the foot soldiers. "Choose a target. . . . Shoot!" A volley of darts whistled overhead, to plunge into white bodies. With chisel-bladed fingers the First Folk plucked them out, discarded them with no evidence of vexation. One or two staggered, wandered confusedly across the line of approach. Others raised their tubes, withdrew the shutter. Out flew the insects, horny wings rasping, prongs thrust forward. Across the moss they flickered, to crush themselves against the armor of the knights, to drop to the ground, to be stamped upon.

The soldiers cranked their crossbows back into tension, discharged another flight of darts, caused several more First Folk casualties.

The First Folk spread into a long line, surrounded the Faide troops. Lord Faide shifted half his knights to the other side of the wagons.

The First Folk wandered closer. Lord Faide called for a charge. The knights stepped smartly forward, swords swinging. The First Folk advanced a few more steps, then stopped short. The flaps of skin at their backs swelled, pulsed; white foam gushed through their vents; clouds and billows rose up around them. The knights halted uncertainly, prodding and slashing into the foam but finding nothing. The foam piled higher, rolling in and forward, pushing the knights back toward the wagons. They looked questioningly toward Lord Faide.

Lord Faide waved his sword. "Cut through to the other side! Forward!" Slashing two-handed with his sword, he sprang into the foam. He struck something solid, hacked blindly at it, pushed forward. Then his legs were seized; he was upended and fell with a spine-rattling jar. Now he felt the grate of a thorn searching his armor. It found a crevice under his corselet, and pierced him. Cursing he raised on his hands and knees, plunged blindly forward. Enormous hard hands grasped him, heavy forms fell on his shoulders. He tried to breathe, the foam clogged his visor; he began to smother. Staggering to his feet, he half-ran, half-fell out into the open air, carrying two of the First Folk with him. He had lost his sword, but managed to draw his dagger. The First Folk released him and stepped back into the foam. Lord Faide sprang to his feet. Inside the foam came the sounds of combat; some of his knights burst into the open; others called for help. Lord Faide motioned to the knights. "Back within, the devils slaughter our kinsmen! In and on to the center!"

He took a deep breath. Seizing his dagger he thrust himself back into the foam. A flurry of shapes came at him; he pounded with his fists, cut with his dagger, stumbled over a mass of living tissue. He kicked the softness, and stepped on metal. Bending he grasped a leg, but found it limp and dead. First Folk were on his back, another thorn found its mark; he groaned and thrust himself forward, and once again fell out into the open air.

A scant fifty of his knights had won back into the central clearing. Lord Faide cried out, "To the center, mount your horses!" Abandoning his car, he himself vaulted into a saddle. The foam boiled and billowed closer. Lord Faide waved his arm. "Forward, all; at a gallop! After us the wagons—out into the open!"

They charged, thrusting the frightened horses into the foam. There was white blindness, the feel of forms underneath, then the open air once again. Behind came the wagons, and the foot soldiers, running along the channel cut by the wagons. All won free—all but the knights who had fallen under the foam.

Two hundred yards from the great white clot of foam, Lord Faide halted, turned, looked back. He raised his fist, shook it in a passion. "My knights, my car, my honor! I'll burn your forests, I'll drive you into the sea, there'll be no peace till all are dead!" He swung around. "Come," he called bitterly to the remnants of his war party. "We have been defeated. We retreat to Faide Keep."

VIII

Faide Keep, like Ballant Keep, was constructed of a black glossy substance, half metal, half stone, impervious to heat, force and radiation. A parasol roof, designed to ward off hostile energy, rested on five squat outer towers, connected by

walls almost as high as the lip of the overhanging roof.

The homecoming banquet was quiet and morose. The soldiers and knights ate lightly, drank much, but instead of becoming merry, lapsed into gloom. Lord Faide, overcome by emotion, jumped to his feet. "Everyone sits silent, aching with rage. I feel no differently. We shall take revenge. We shall put the forests to the torch. The cursed white savages will smother and burn. Drink now with good cheer; not a moment will be wasted. But we must be ready. It is no more than idiocy to attack as before. Tonight I take council with the jinxmen, and we will start a program of affliction."

The soldiers and knights rose to their feet, raised their cups and drank a somber toast. Lord Faide bowed and left the hall.

He went to his private trophy room. On the walls hung escutcheons, memorials, death-masks, clusters of swords like many-petaled flowers; a rack of side arms, energy pistols, electric stilettos; a portrait of the original Faide, in ancient space-farer's uniform, and a treasured, almost unique, photograph of the great ship which had brought the first Faide to Pangborn.

Lord Faide studied the ancient face for several moments, then summoned a servant. "Ask the Head Jinxman to attend me."

Hein Huss presently stumped into the room. Lord Faide turned away from the portrait, seated himself, motioned to Hein Huss to do likewise. "What of the keep-lords?" he asked. "How do they regard the setback at the hands of the First Folk?"

"There are various reactions," said Hein Huss. "At Boghoten, Candelwade and Havve there is distress and anger."

Lord Faide nodded. "These are my kinsmen."

"At Gisborne, Graymar, Castle Cloud and Alder there is satisfaction, veiled calculation."

"To be expected," muttered Lord Faide. "These lords must be humbled; in spite of oaths and undertakings, they still think rebellion."

"At Star Home, Julian-Douray and Oak Hall I read surprise at the abilities of the First Folk, but in the main disinterest."

Lord Faide nodded dourly. "Well enough. There is no actual rebellion in prospect, we are free to concentrate on the First Folk. I will tell you what is in my mind. You report that new plantings are in progress between Wildwood, Old Forest, Sarrow Copse and elsewhere—possibly with the intent of surrounding Faide Keep." He looked inquiringly at Hein Huss, but no comment was forthcoming. Lord Faide continued. "Possibly we have underestimated the cunning of the savages. They seem capable of forming plans and acting with almost human persistence. Or, I should say, more than human persistence, for it appears that after sixteen hundred years they still consider us invaders, and hope to exterminate us."

"That is my own conclusion," said Hein Huss.

"We must take steps to strike first. I consider this a matter for the jinxmen. We gain no honor dodging wasps, falling into traps or groping through foam. It is a needless waste of lives. Therefore I want you to assemble your jinxmen, cabalmen and spellbinders; I want you to formulate your most potent hoodoos—"

"Impossible."

Lord Faide's black eyebrows rose high. "'Impossible?'"

Hein Huss seemed vaguely uncomfortable. "I read the wonder in your mind. You suspect me of disinterest, irresponsibility. Not true. If the First Folk defeat you, we suffer likewise."

"Exactly," said Lord Faide dryly. "You will starve."

"Nevertheless the jinxmen cannot help you." He hoisted himself to his feet, started for the door.

"Sit," said Lord Faide. "It is necessary to pursue this matter."

Hein Huss looked around with his bland water-clear eyes. Lord Faide met his gaze. Hein Huss sighed deeply. "I see I must ignore the precepts of my trade, break the habits of a lifetime. I must explain." He took his bulk to the wall, fingered the side arms in the rack, studied the portrait of the ancestral Faide. "These miracle-workers of the old times—unfortunately we cannot use their magic! Notice the bulk of the spaceship! As heavy as Faide Keep." He turned his gaze on the table, teleported a candelabra two or three inches. "With considerably less effort they gave that spaceship enormous velocity, using ideas and forces they knew to be imaginary and irrational. We have advanced since then, of course. We no longer employ mysteries, arcane constructions, wild nonhuman forces. We are rational and practical—but we cannot achieve the effects of the ancient magicians."

Lord Faide watched Hein Huss with saturnine eyes. Hein Huss gave his deep rumbling laugh. "You think that I wish to distract you with talk? No, this is not the case. I am preparing to enlighten you." He returned to his seat, lowered his bulk with a groan. "Now I must talk at length, to which I am not accustomed. But you must be given to understand what we jinxmen can do and what we cannot do.

"First, unlike the ancient magicians, we are practical men. Naturally there is difference in our abilities. The best jinxman combines great telepathic facility, implacable personal force, intimate knowledge of his fellow humans. He knows their acts, motives, desires and fears, the symbols which most vigorously represent these qualities. Jinxmanship in the main is drudgery—dangerous, difficult and unromantic—with no mystery except that which we employ to confuse our enemies." Hein Huss glanced at Lord Faide to encounter the same saturnine gaze. "Ha! I still have told you nothing, I still have spent many words talking around my

inability to confound the First Folk. Patience."

"Speak on," said Lord Faide.

"Listen then. What happens when I hoodoo a man? First I must enter into his mind telepathically. There are three operational levels: the conscious, the unconscious, the cellular. The most effective jinxing is done if all three levels are influenced. I feel into my victim, I learn as much as possible, supplementing my previous knowledge of him, which is part of my stock-in-trade. I take up his doll, which carries his traces. The doll is highly useful but not indispensable. It serves as a focus for my attention; it acts as a pattern, or a guide, as I fix upon the mind of the victim, and he is bound by his own telepathic capacity to the doll which bears his traces.

"So! Now! Man and doll are identified in my mind, and at one or more levels in the victim's mind. Whatever happens to the doll the victim feels to be happening to himself. There is no more to simple hoodooing than that, from the standpoint of the jinxman. But naturally the victims differ greatly. Susceptibility is the key idea here. Some men are more susceptible than others. Fear and conviction breed susceptibility. As a jinxman succeeds he becomes ever more feared, and consequently the more efficacious he becomes. The process is self-generative.

"Demon-possession is a similar technique. Susceptibility is again essential; again conviction creates susceptibility. It is easiest and most dramatic when the characteristics of the demon are well-known, as in the case of Comandore's Keyril. For this reason, demons can be exchanged or traded among jinxmen. The commodity actually traded is public acceptance and familiarity with the demon."

"Demons then do not actually exist?" inquired Lord Faide half-incredulously.

Hein Huss grinned vastly, showing enormous yellow teeth. "Telepathy works through a super-stratum. Who knows what is created in this super-stratum? Maybe the demons live on after they have been conceived; maybe they now are real. This of course is speculation, which we jinxmen shun.

"So much for demons, so much for the lesser techniques of jinxmanship. I have explained sufficient to serve as background to the present situation."

"Excellent," said Lord Faide. "Continue."

"The question, then, is: How does one cast a hoodoo into a creature of an alien race?" He looked inquiringly at Lord Faide. "Can you tell me?"

"I?" asked Lord Faide surprised. "No."

"The method is basically the same as in the hoodooing of men. It is necessary to make the creature believe, in every cell of his being, that he suffers or dies. This is where the problems begin to arise. Does the creature think—that is to say, does he arrange the processes of his life

in the same manner as men? This is a very important distinction. Certain creatures of the universe use other methods than the human nerve-node system to control their environments. We call the human system 'intelligence'—a word which properly should be restricted to human activity. Other creatures use different agencies, different systems, arriving sometimes at similar ends. To bring home these generalities, I cannot hope to merge my mind with the corresponding capacity in the First Folk. The key will not fit the lock. At least, not altogether. Once or twice when I watched the First Folk trading with men at Forest Market, I felt occasional weak significances. This implies that the First Folk mentality creates something similar to human telepathic impulses. Never-

theless, there is no real sympathy between the two races.

"This is the first and the least difficulty. If I were able to make complete telepathic contact—what then? The creatures are different from us. They have no words for 'fear' 'hate' 'rage' 'pain' 'bravery' 'cowardice.' One may deduce that they do not feel these emotions. Undoubtedly they know other sensations, possibly as meaningful. Whatever these may be, they are unknown to me, and therefore I cannot either form or project symbols for these sensations."

Lord Faide stirred impatiently. "In short, you tell me that you cannot efficiently enter these creatures' minds; and that if you could, you do not know what influences you could plant there to do them harm."

"Succinct," agreed Hein Huss. "Substantially accurate."

Lord Faide rose to his feet. "In that case you must repair these deficiencies. You must learn to telepathize with the First Folk; you must find what influences will harm them. As quickly as possible."

Hein Huss stared reproachfully at Lord Faide. "But I have gone to great lengths to explain the difficulties involved! To hoodoo the First Folk is a monumental task! It would be necessary to enter Wildwood, to live with the First Folk, to become one of them, as my apprentice thought to become a tree. Even then an effective hoodoo is improbable! The First Folk must be susceptible to conviction! Otherwise there would be no bite to the hoodoo! I could guarantee no success. I would predict failure. No other jinxman would dare tell you this, no other would risk his *mana*. I dare because I am Hein Huss, with life behind me."

"Nevertheless we must attempt every weapon at hand," said Lord Faide in a dry voice. "I cannot risk my knights, my kinsmen, my soldiers against these pallid half-creatures. What a waste of good flesh and blood to be stuck by a poison insect! You must go to Wildwood, you must learn how to hoodoo the First Folk."

Hein Huss heaved himself erect. His great round face was stony; his eyes were like bits of water-worn glass. "It is likewise a waste to go on a fool's errand. I am no fool, and I will not undertake a hoodoo which is futile from the beginning."

"In that case," said Lord Faide, "I will find someone else." He went to the door, summoned a servant. "Bring Isak Comandore here."

Hein Huss lowered his bulk into the chair. "I will remain during the interview, with your permission."

"As you wish."

Isak Comandore appeared in the doorway, tall, loosely articulated, head hanging forward. He darted a glance of swift appraisal at Lord Faide, at Hein Huss, then stepped into the room.

Lord Faide crisply explained his desires. "Hein Huss refuses to undertake the mission. Therefore I call on you."

Isak Comandore calculated. The pattern of his thinking was clear:

he possibly could gain much *mana,* there was small risk of diminution, for had not Hein Huss already dodged away from the project? Comandore nodded. "Hein Huss has made clear the difficulties; only a very clever and very lucky jinxman can hope to succeed. But I accept the challenge, I will go."

"Good," said Lord Faide.

"Good," said Hein Huss. "I will go, too." Isak Comandore darted him a sudden hot glance. "I wish only to observe. To Isak Comandore goes the responsibility and whatever credit may ensue."

"Very well," said Comandore presently. "I welcome your company. Tomorrow morning we leave. I go to order our wagon."

Late in the evening Apprentice Sam Salazar came to Hein Huss where he sat brooding in his workroom. "What do you wish?" growled Huss.

"I have a request to make of you, Head Jinxman Huss."

"Head Jinxman in name only," grumbled Hein Huss. "Isak Comandore is about to assume my position."

Sam Salazar blinked, laughed uncertainly. Hein Huss fixed wintry pale eyes on him. "What do you wish?"

"I have heard that you go on an expedition into Wildwood, to study the First Folk."

"True, true. What then?"

"Surely they will now attack all men?"

Hein Huss shrugged. "At Forest Market they trade with men. At Forest Market men have always entered the forest. Perhaps there will be change, perhaps not."

"I would go with you, if I may," said Sam Salazar.

"This is no mission for apprentices."

"An apprentice must take every opportunity to learn," said Sam Salazar. "Also you will need extra hands to set up tents, to load and unload cabinets, to cook, to fetch water and other such matters."

"Your argument is convincing," said Hein Huss. "We depart at dawn; be on hand."

IX

As the sun lifted over the heath, the jinxmen departed Faide Keep. The high-wheeled wagon creaked north over the moss, Hein Huss and Isak Comandore riding the front seat, Sam Salazar with his legs hanging over the tail. The wagon rose and fell with the dips and mounds of the moss, wheels wobbling, and presently passed out of sight behind Skywatcher's Hill.

Five days later, an hour before sunset, the wagon reappeared. As before Hein Huss and Isak Comandore rode the front seat, with Sam Salazar perched behind. They approached the keep, and without giving so much as a sign or a nod, drove through the gate into the courtyard.

Isak Comandore unfolded his long legs, stepped to the ground like a spider; Hein Huss lowered himself

with a grunt. Both went to their quarters, while Sam Salazar led the wagon to the jinxmen's warehouse.

Somewhat later Isak Comandore presented himself to Lord Faide, who had been waiting in his trophy room, forced to a show of indifference through considerations of position, dignity and protocol. Isak Comandore stood in the doorway, grinning like a fox. Lord Faide eyed him with sour dislike, waiting for Comandore to speak. Hein Huss might have stationed himself an entire day, eyes placidly fixed on Lord Faide, awaiting the first word; Isak Comandore lacked the absolute serenity. He came a step forward. "I have returned from Wildwood."

"With what results?"

"I believe that it is possible to hoodoo the First Folk."

Hein Huss spoke from behind Comandore. "I believe that such an undertaking, if feasible, would be useless, irresponsible and possibly dangerous." He lumbered forward.

Isak Comandore's eyes glowed hot red-brown; he turned back to Lord Faide. "You ordered me forth on a mission; I will render a report."

"Seat yourselves. I will listen."

Isak Comandore, nominal head of the expedition, spoke. "We rode along the river bank to Forest Market. Here was no sign of disorder or hostility. A hundred First Folk traded timber, planks, posts and poles for knife blades, iron wire, and copper pots. When they returned to their barge we followed them aboard, wagon, horses and all. They showed no surprise—"

"Surprise," said Hein Huss heavily, "is an emotion of which they have no knowledge."

Isak Comandore glared briefly. "We spoke to the barge-tenders, explaining that we wished to visit the interior of Wildwood. We asked if the First Folk would kill us, that if so we would not enter the forest. They professed indifference as to either our well-being or our destruction. This was by no means a guarantee of safe-conduct; however, we accepted it as such, and remained aboard the barge." He spoke on, with occasional emendations from Hein Huss.

They had proceeded up the river, into the forest, the First Folk poling against the slow current. Presently they put away the poles; nevertheless the barge moved as before. The mystified jinxmen discussed the possibility of teleportation, or symbological force, and wondered if the First Folk had developed jinxing technique unknown to men. Sam Salazar, however, noticed that four enormous water beetles, each twelve feet long with oil-black carapaces and blunt heads, had risen from the river bed and pushed the barge from behind—apparently without direction or command. The First Folk stood at the bow, turning the nose of the barge this way or that to follow the winding of the river. They ignored the jinxmen and Sam Salazar as if they did not exist.

The beetles swam tirelessly; the

barge moved for four hours as fast as a man could walk. Occasionally First Folk peered from the forest shadows, but none showed interest or concern in the barge's unusual cargo. By midafternoon the river widened, broke into many channels and became a marsh; a few minutes later the barge floated out into the open water of a small lake. Along the shore, behind the first line of trees appeared a large settlement. The jinxmen were interested and surprised. It had always been assumed that the First Folk wandered at random through the forest, as they had originally lived in the moss of the downs.

The barge grounded; the First Folk walked ashore, the men followed with the horses and wagon. Their immediate impressions were of swarming numbers, of slow but incessant activity, and they were attacked by an overpoweringly evil smell.

Ignoring the stench the men brought the wagon in from the shore, paused to take stock of what they saw. The settlement appeared to be a center of many diverse activities. The trees had been stripped of lower branches, and supported blocks of hardened foam three hundred feet long, fifty feet high, twenty feet thick, with a space of a man's height intervening between the underside of the foam and the ground. There were a dozen of these blocks, apparently of cellular construction. Certain of the cells had broken open, and seethed with small white fishlike creatures —the First Folk young.

Below the blocks masses of First Folk engaged in various occupations, in the main unfamiliar to the jinxmen. Leaving the wagon in the care of Sam Salazar, Hein Huss and Isak Comandore moved forward among the First Folk, repelled by the stench and the pressure of alien flesh, but drawn by curiosity. They were neither heeded nor halted; they wandered everywhere about the settlement. One area seemed to be an enormous zoo, divided into a number of sections. The purpose of one of these sections —a kind of range two hundred feet long—was all too clear. At one end three or four First Folk released wasps from tubes; at the other end a human corpse hung on a rope—a Faide casualty from the battle at the new planting. Certain of the wasps flew straight at the corpse; just before contact they were netted and removed. Others flew up and away, or veered toward the First Folk who stood along the side of the range. These latter also were netted and killed at once.

The purpose of the business was clear enough. Examining some of the other activity in this new light, the jinxmen were able to interpret much which had hitherto puzzled them.

They saw beetles tall as dogs with heavy saw-toothed pincers attacking objects resembling horses; pens of insects even larger, long, narrow, segmented, with dozens of heavy legs and nightmare heads. All these creatures—wasps, beetles, centipedes—in smaller and less formidable form were indigenous to the forest; it was

plain that the First Folk had been practicing selective breeding for many years, perhaps centuries.

Not all the activity was warlike. Moths were trained to gather nuts, worms to gnaw straight holes through timber; in another section caterpillars chewed a yellow mash, molded it into identical spheres. From the zoo much of the evil odor emanated; the jinxmen departed without reluctance, and returned to the wagon. Sam Salazar pitched the tent, built a fire, while Hein Huss and Isak Comandore discussed the settlement.

Night came; the blocks of foam glowed with imprisoned light; the activity underneath proceeded without cessation. The jinxmen entered the tent and slept, while Sam Salazar stood guard.

The following day Hein Huss was able to engage one of the First Folk in conversation: the first attention of any sort given to them.

The conversation was long; Hein Huss reported only the gist of it to Lord Faide. (Isak Comandore turned away, ostentatiously disassociating himself from the matter.)

Hein Huss first of all inquired as to the purpose of the sinister preparations: the wasps, beetles, centipedes and the like.

"We intend to kill men," the creature had reported ingenuously. "We intend to return to the moss. This has been our purpose ever since men appeared on the planet."

Huss stated that such an ambition was shortsighted, that there was ample room for both men and First Folk on Pangborn. "The First Folk," said Hein Huss, "should remove their traps and cease their efforts to surround the keeps with forest."

"No," came the response, "men are intruders. They mar the beautiful moss. All will be killed."

Isak Comandore returned to the conversation. "I noticed here a significant fact. All the First Folk within sight had ceased their work; all looked toward us, as if they, too, participated in the discussion. I reached the highly important conclusion that the First Folk are not complete individuals but components of a larger unity, joined to a greater or less extent by a telepathic phase not unlike our own."

Hein Huss continued placidly. "I remarked that if we were attacked, many of the First Folk would perish. The creature showed no concern, and in fact implied much of what Jinxman Comandore had already induced: 'There are always more in the cells to replace the elements which die. But if the community becomes sick, all suffer. We have been forced into the forests, into a strange existence. We must arm ourselves and drive away the men, and to this end we have developed the methods of men to our own purposes!' "

Isak Comandore spoke. "Needless to say the creature referred to the ancient men, not ourselves."

"In any event," said Lord Faide, "they leave no doubt as to their intentions. We should be fools not to

attack them at once, with every weapon at our disposal."

Hein Huss continued imperturbably. "The creature went on at some length. 'We have learned the value of irrationality.' 'Irrationality' of course was not his word or even his meaning. He said something like 'a series of vaguely motivated trials'—as close as I can translate. He said, 'We have learned to change our environment. We use insects and trees and plants and water-slugs. It is an enormous effort for us who would prefer a placid life in the moss. But you men have forced this life on us, and now you must suffer the consequences.' I pointed out once more that men were not helpless, that many First Folk would die. The creature seemed unworried. 'The community persists.' I asked a delicate question. 'If your purpose is to kill men, why do you allow us here?' He said, 'The entire community of men will be destroyed.' Apparently they believe the human society to be similar to their own, and therefore regard the killing of three wayfaring individuals as pointless effort."

Lord Faide laughed grimly. "To destroy us they must first win past Hellmouth, then penetrate Faide Keep. This they are unable to do."

Isak Comandore resumed his report. "At this time I was already convinced that the problem was one of hoodooing not an individual but an entire race. In theory this should be no more difficult than hoodooing one. It requires no more effort to speak to twenty than to one. With this end in view I ordered the apprentice to collect substances associated with the creatures. Skin-flakes, foam, droppings, all other exudations obtainable. While he did so, I tried to put myself in rapport with the creatures. It is difficult, for their telepathy works across a different stratum than ours. Nevertheless, to a certain extent I have succeeded."

"Then you can hoodoo the First Folk?" asked Lord Faide.

"I vouchsafe nothing until I try. Certain preparations must be made."

"Go then; make your preparations."

Comandore rose to his feet, and with a sly side-glance for Hein Huss left the room. Huss waited, pinching his chin with heavy fingers. Lord Faide looked at him coldly. "You have something to add?"

Huss grunted, hoisted himself to his feet. "I wish that I did. But my thoughts are confused. Of the many futures, all seem troubled and angry. Perhaps our best is not good enough."

Lord Faide looked at Hein Huss with surprise; the massive Head Jinxman had never before spoken in terms so pessimistic and melancholy. "Speak then; I will listen."

Hein Huss said gruffly, "If I knew any certainties I would speak gladly. But I am merely beset by doubts. I fear that we can no longer depend on logic and careful jinxmanship. Our ancestors were miracle-workers, magicians. They drove the First Folk into the forest. To put us to flight in our turn the First Folk have adopt-

ed the ancient methods: random trial and purposeless empiricism. I am dubious. Perhaps we must turn our backs on sanity and likewise return to the mysticism of our ancestors."

Lord Faide shrugged. "If Isak Comandore can hoodoo the First Folk, such a retreat may be unnecessary."

"The world changes," said Hein Huss. "Of so much I feel sure: the old days of craft and careful knowledge are gone. The future is for men of cleverness, of imagination untroubled by discipline; the unorthodox Sam Salazar may become more effective than I. The world changes."

Lord Faide smiled his sour dyspeptic smile. "When that day comes I will appoint Sam Salazar Head Jinxman and also name him Lord Faide, and you and I will retire together to a hut on the downs."

Hein Huss made a heavy fateful gesture and departed.

X

Two days later Lord Faide, coming upon Isak Comandore, inquired as to his progress. Comandore took refuge in generalities. After another two days Lord Faide inquired again and this time insisted on particulars. Comandore grudgingly led the way to his workroom, where a dozen cabalmen, spellbinders and apprentices worked around a large table, building a model of the First Folk settlement in Wildwood.

"Along the lakeshore," said Comandore, "I will range a great number of dolls, daubed with First Folk essences. When this is complete I will work up a hoodoo and blight the creatures."

"Good. Perform well." Lord Faide departed the workroom, mounted to the topmost pinnacle of the keep, to the cupola where the ancestral weapon Hellmouth was housed. "Jambart! Where are you?"

Weapon-tender Jambart, short, blue-jowled, red-nosed and big-bellied, appeared. "My lord?"

"I come to inspect Hellmouth. Is it prepared for instant use?"

"Prepared, my lord, and ready. Oiled, greased, polished, scraped, burnished, tended — every part smooth as an egg."

Lord Faide made a scowling examination of Hellmouth—a heavy cylinder six feet in diameter, twelve feet long, studied with half-domes inter-connected with tubes of polished copper. Jambart undoubtedly had been diligent. No trace of dirt or rust or corrosion showed; all was gleaming metal. The snout was covered with a heavy plate of metal and tarred canvas; the ring upon which the weapon swiveled was well-greased.

Lord Faide surveyed the four horizons. To the south was fertile Faide Valley; to the west open downs; to north and east the menacing loom of Wildwood.

He turned back to Hellmouth and pretended to find a smear of grease. Jambart boiled with expostulations and protestations; Lord Faide uttered a grim warning, enjoining less lax-

ity, then descended to the workroom of Hein Huss. He found the Head Jinxman reclining on a couch, staring at the ceiling. At a bench stood Sam Salazar surrounded by bottles, flasks and dishes.

Lord Faide stared balefully at the confusion. "What are you doing?" he asked the apprentice.

Sam Salazar looked up guiltily. "Nothing in particular, my lord."

"If you are idle, go then and assist Isak Comandore."

"I am not idle, Lord Faide."

"Then what do you do?"

Sam Salazar gazed sulkily at the bench. "I don't know."

"Then you are idle!"

"No, I am occupied. I pour various liquids on this foam. It is First Folk foam. I wonder what will happen. Water does not dissolve it, nor spirits. Heat chars and slowly burns it, emitting a foul smoke."

Lord Faide turned away with a sneer. "You amuse yourself as a child might. Go to Isak Comandore; he can find use for you. How do you expect to become a jinxman, dabbling and prattling like a baby among pretty rocks?"

Hein Huss gave a deep sound: a mingling of sigh, snort, grunt and clearing of the throat. "He does no harm, and Isak Comandore has hands enough. Salazar will never become a jinxman; that has been clear a long time."

Lord Faide shrugged. "He is your apprentice, and your responsibility. Well, then. What news from the keeps?"

Hein Huss, groaning and wheezing, swung his legs over the edge of the couch. "The lords share your concern, to greater or less extent. Your close allies will readily place troops at your disposal; the others likewise if pressure is brought to bear."

Lord Faide nodded in dour satisfaction. "For the moment there is no urgency. The First Folk hold to their forests. Faide Keep of course is impregnable, although they might ravage the valley—" He paused thoughtfully. "Let Isak Comandore cast his hoodoo. Then we will see."

From the direction of the bench came a hiss, a small explosion, a whiff of acrid gas. Sam Salazar turned guiltily to look at them, his eyebrows singed. Lord Faide gave a snort of disgust and strode from the room.

"What did you do?" Hein Huss inquired in a colorless voice.

"I don't know."

Now Hein Huss likewise snorted in disgust. "Ridiculous. If you wish to work miracles, you must remember your procedures. Miracle-working is not jinxmanship, with established rules and guides. In matters so complex it is well that you take notes, so that the miracles may be repeated."

Sam Salazar nodded in agreement and turned back to the bench.

XI

Late during the day, news of new First Folk truculence reached Faide Keep. On Honeymoss Hill, not far

to west of Forest Market, a camp of shepherds had been visited by a wandering group of First Folk, who began to kill the sheep with thorn-swords. When the shepherds protested, they, too, were killed, and the remainder of the sheep massacred.

The following day came other news: four children swimming in Brastock River at Gilbert Ferry had been seized by enormous water beetles and cut into pieces. On the other side of Wildwood, in the foothills immediately below Castle Cloud, peasants had cleared several hillsides and planted them to vines. Early in the morning they had discovered a horde of black disklike flukes, devouring the vines—leaves, branches, trunks and roots. They set about killing the flukes with spades, and at once were stung to death by wasps.

Adam McAdam reported the incidents to Lord Faide, who went to Isak Comandore in a fury. "How soon before you are prepared?"

"I am prepared now. But I must rest and fortify myself. Tomorrow morning I work the hoodoo."

"The sooner the better! The creatures have left their forest; they are out killing men!"

Isak Comandore pulled his long chin. "That was to be expected; they told us as much."

Lord Faide ignored the remark. "Show me your tableau."

Isak Comandore took him into his workroom. The model was now complete, with the masses of simulated First Folk properly daubed and sensitized, each tied with a small wad of foam. Isak Comandore pointed to a pot of dark liquid. "I will explain the basis of the hoodoo. When I visited the camp I watched everywhere for powerful symbols. Undoubtedly there were many at hand, but I could not discern them. However, I remembered a circumstance from the battle at the planting: when the creatures were attacked, threatened with fire and about to die, they spewed foam of dull purple color. Evidently this purple foam is associated with death. My hoodoo will be based upon this symbol."

"Rest well, then, so that you may hoodoo to your best capacity."

The following morning Isak Comandore dressed in long robes of black, set a mask of the demon Nard on his head to fortify himself. He entered his workroom, closed the door.

An hour passed, two hours. Lord Faide sat at breakfast with his kin, stubbornly maintaining a pose of cynical unconcern. At last he could no longer contain himself, and went out into the courtyard, where Comandore's underlings stood fidgeting and uneasy. "Where is Hein Huss?" demanded Lord Faide. "Summon him here."

Hein Huss came stumping out of his quarters. Lord Faide motioned to Comandore's workshop. "What is happening? Is he succeeding?"

Hein Huss looked toward the workshop. "He is casting a powerful hoodoo. I feel confusion, anger—"

"In Comandore, or in the First Folk?"

"I am not in rapport. I think he has conveyed a message to their minds. A very difficult task, as I explained to you. In this preliminary aspect he has succeeded."

"'Preliminary'? What else remains?"

"The two most important elements of the hoodoo: the susceptibility of the victim, and the appropriateness of the symbol."

Lord Faide frowned. "You do not seem optimistic."

"I am uncertain. Isak Comandore may be right in his assumption. If so, and if the First Folk are highly susceptible, today marks a great victory, and Comandore will achieve tremendous *mana*."

Lord Faide stared at the door to the workshop. "What now?"

Hein Huss' eyes went blank with concentration. "Isak Comandore is near death. He can hoodoo no more today."

Lord Faide turned, waved his arm to the cabalmen. "Enter the workroom! Assist your master!"

The cabalmen raced to the door, flung it open. Presently they emerged supporting the limp form of Isak Comandore, his black robe spattered with purple foam. Lord Faide pressed close. "What did you achieve? Speak!"

Isak Comandore's eyes were half-closed, his mouth hung loose and wet. "I spoke to the First Folk, to the whole race. I sent the symbol into their minds—" His head fell limply sidewise.

Lord Faide moved back. "Take him to his quarters. Put him on his couch." He turned away, stood indecisively, chewing at his drooping lower lip. "Still we do not know the measure of his success."

"Ah," said Hein Huss, "but we do!"

Lord Faide jerked around. "What is this? What do you say?"

"I saw into Comandore's mind. He used the symbol of purple foam, with tremendous effort he drove it into their minds. Then he learned that purple foam means not death—purple foam means fear for the safety of the community, purple foam means desperate rage."

"In any event," said Lord Faide after a moment, "there is no harm done. The First Folk can hardly become more hostile."

Three hours later a scout rode furiously into the courtyard, threw himself off his horse, ran to Lord Faide. "The First Folk have left the forest! A tremendous number! Thousands! They are advancing on Faide Keep!"

"Let them advance!" said Lord Faide. "The more the better! Jambart, where are you?"

"Here, sir."

"Prepare Hellmouth! Hold all in readiness!"

"Hellmouth is always ready, sir!"

Lord Faide struck him across the shoulders. "Off with you! Bernard!"

The sergeant of the Faide troops came forward. "Ready, Lord Faide."

"The First Folk attack. Armor your men against wasps, feed them well. We will need all our strength."

Lord Faide turned to Hein Huss. "Send to the keeps, to the manor houses, order our kinsmen to join us, with all their troops and all their armor. Send to Bellgard Hall, to Boghoten, Camber and Candelwade. Haste, haste, it is only hours from Wildwood."

Huss held up his hand. "I have already done so. The keeps are warned. They know your need."

"And the First Folk—can you feel their minds?"

"No."

Lord Faide walked away. Hein Huss lumbered out the main gate, walked around the keep, casting appraising glances up the black walls of the squat towers, windowless and proof even against the ancient miracle-weapons. High on top the great parasol roof, Jambart the weapon-tender worked in the cupola, polishing that which already glistened, greasing surfaces already heavy with grease.

Hein Huss returned within. Lord Faide approached him, mouth hard, eyes bright. "What have you seen?"

"Only the keep, the walls, the towers, the roof, and Hellmouth."

"And what do you think?"

"I think many things."

"You are noncommittal, you know more than you say. It is best that you speak, because if Faide Keep falls to the savages, you die with the rest of us."

Hein Huss' water-clear eyes met

the brilliant black gaze of Lord Faide. "I know only what you know. The First Folk attack. They have proved they are not stupid. They intend to kill us. They are not jinxmen; they cannot afflict us, or force us out. They cannot break in the walls. To burrow under, they must dig through solid rock. What are their plans? I do not know. Will they succeed? Again I do not know. But the day of the jinxman and his orderly array of knowledge is past. I think that again we must grope for miracles, blindly and foolishly, like Salazar pouring liquids on foam."

A troop of armored horsemen rode in through the gates: warriors from nearby Bellgard Hall. And as the hours passed contingents from other keeps came to Faide Keep, until the courtyard was dense with troops and horses.

Two hours before sunset the First Folk were sighted across the downs. They seemed a very large company, moving in an undisciplined clot with a number of stragglers, forerunners and wanderers out on the flanks.

The hot-bloods from outside keeps came clamoring to Lord Faide, urging a charge to cut down the the First Folk; they found no second voices among the veterans of the battle at the planting. Lord Faide, however, was pleased to see the dense mass of First Folk. "Let them approach, only a mile more—and Hellmouth will take them! Jambart!"

"At your call, Lord Faide."

"Come, Hellmouth speaks!" He strode away with Jambart after. Up to the cupola they climbed.

"Roll forth Hellmouth, direct it against the savages!"

Jambart leaped to the glistening array of wheels and levers. He hesitated in preplexity, then tentatively twisted a wheel. Hellmouth responded by twisting slowly around on its radial track, to the groan and chatter of long-frozen bearings. Lord Faide's brows lowered into a menacing line. "I hear evidence of neglect."

"Neglect, my lord, never! Find one spot of rust, a shadow of grime, you may have me whipped!"

"What of the clatter?"

"That is internal and invisible—none of my responsibility."

Lord Faide said nothing. Hellmouth now pointed toward the great pale tide from Wildwood. Jambart twisted a second wheel and Hellmouth thrust forth its heavy snout. Lord Faide, in a voice harsh with anger, cried, "The cover, fool!"

"An oversight, my lord, easily repaired." Jambart crawled out along the top of Hellmouth, clinging to the protuberances for dear life, with below only the long smooth sweep of roof. With considerable difficulty he tore the covering loose, then grunting and cursing, inched himself back, jerking with his knees, rearing his buttocks.

The First Folk had slowed their pace a trifle, the main body only a half-mile distant.

"Now," said Lord Faide in high excitement, "before they disperse, we exterminate them!" He sighted

through a telescopic tube, squinting through the dimness of internal films and incrustations, signaled to Jambart for the final adjustments. "Now! Fire!"

Jambart pulled the firing lever. Within the great metal barrel came a sputter of clicking sounds. Hellmouth whined, roared. Its snout glowed red, orange, white, and out poured a sudden gout of blazing purple radiation —which almost instantly died. Hellmouth's barrel quivered with heat, fumed, seethed, hissed. From within came a faint pop. Then there was silence.

A hundred yards in front of the First Folk a patch of moss burnt black where the bolt had struck. The aiming device was inaccurate. Hellmouth's bolt had killed perhaps twenty of the First Folk vanguard.

Lord Faide made feverish signals. "Quick! Raise the barrel. Now! Fire again!"

Jambart pulled the firing arm, to no avail. He tried again, with the same lack of success. "Hellmouth evidently is tired."

"Hellmouth is dead," cried Lord Faide. "You have failed me. Hellmouth is extinct."

"No, no," protested Jambart. "Hellmouth rests! I nurse it as my own child! It is polished like glass! Whenever a section wears off or breaks loose, I neatly remove the fracture, and every trace of cracked glass."

Lord Faide threw up his arms, shouted in vast inarticulate grief, ran below. "Huss! Hein Huss!"

Hein Huss presented himself. "What is your will?"

"Hellmouth has given up its fire. Conjure me more fire for Hellmouth, and quickly!"

"Impossible."

"Impossible!" cried Lord Faide. "That is all I hear from you! Impossible, useless, impractical! You have lost your ability. I will consult Isak Comandore."

"Isak Comandore can put no more fire into Hellmouth than can I."

"What sophistry is this? He put demons into men, surely he can put fire into Hellmouth!"

"Come, Lord Faide, you are overwrought. You know the difference between jinxmanship and miracle-working."

Lord Faide motioned to a servant. "Bring Isak Comandore here to me!"

Isak Comandore, face haggard, skin waxy, limped into the courtyard. Lord Faide waved peremptorily. "I need your skill. You must restore fire to Hellmouth."

Comandore darted a quick glance at Hein Huss, who stood solid and cold. Comandore decided against dramatic promises which could not be fulfilled. "I cannot do this, my lord."

"What! You tell me this, too?"

"Remark the difference, Lord Faide, between man and metal. A man's normal state is something near madness; he is at all times balanced on a knife-edge between hysteria and apathy. His senses tell him far less of the world than he thinks they do. It is a simple trick to deceive a man,

to possess him with a demon, to drive him out of his mind, to kill him. But metal is insensible; metal reacts only as its shape and condition dictates, or by the working of miracles."

"Then you must work miracles!"

"Impossible."

Lord Faide drew a deep breath, collected himself. He walked swiftly across the court. "My armor, my horse. We attack."

The column formed, Lord Faide at the head. He led the knights through the portals, with armored footmen behind.

"Beware the foam!" called Lord Faide. "Attack, strike, cut, draw back. Keep your visors drawn against the wasps! Each man must kill a hundred! Attack!"

The troop rode forth against the horde of First Folk, knights in the lead. The hooves of the horses pounded softly over the thick moss; in the west the large pale sun hung close to the horizon.

Two hundred yards from the First Folk the knights touched the club-headed horses into a lope. They raised their swords, and shouting, plunged forward, each man seeking to be first. The clotted mass of First Folk separated: black beetles darted forth, and after them long segmented centipede creatures. They dashed among the horses, mandibles clicking, snouts slashing. Horses screamed, reared, fell over backwards; beetles cut open armored knights as a dog cracks a bone. Lord Faide's horse threw him and ran away; he picked himself up, hacked at a near-by beetle, lopped off its front leg. It darted forward, he lopped off the leg opposite; the heavy head dipped, tore up the moss. Lord Faide cut off the remaining legs, and it lay helpless.

"Retreat," he bellowed. "Retreat!"

The knights moved back, slashing and hacking at beetles and centipedes, killing or disabling all which attacked.

"Form into a double line, knights and men. Advance slowly, supporting each other!"

The men advanced. The First Folk dispersed to meet them, armed with their thorn-stilettos and carrying pouches. Ten yards from the men they reached into the pouches, brought forth dark balls, which they threw at the men. The balls broke and spattered on the armor.

"Charge!" bawled Lord Faide. The men sprang forward into the mass of First Folk, cutting, slashing, killing. "Kill!" called Lord Faide in exultation. "Leave not one alive!"

A pang struck him, a sting inside his armor, followed by another and another. Small things crawled inside the metal, stinging, biting, crawling. He looked about: on all sides were harassed expressions, faces working in anguish. Sword arms fell limp, as hands beat on the metal, futilely trying to scratch, rub. Two men suddenly began to tear off their armor.

"Retreat," cried Lord Faide. "Back to the keep!"

The retreat was a rout, the soldiers shedding articles of armor as they ran. After came a flight of wasps—

a dozen or more, and half as many men cried out as the poison prongs struck into their backs.

Inside the keep stormed the disorganized company, casting aside the last of their armor, slapping their skin, scratching, rubbing, crushing the ferocious red mites which infested them.

"Close the gates," roared Lord Faide.

The gates slid shut. Faide Keep was besieged.

XII

During the night the First Folk surrounded the keep, forming a ring fifty yards from the walls. All night there was motion, ghostly shapes coming and going in the starlight.

Lord Faide watched from a parapet until midnight, with Hein Huss at his side. Repeatedly he asked, "What of the other keeps? Where are the reinforcements?" to which Hein Huss each time gave the same reply: "There is confusion and doubt. The keep-lords are anxious to help but do not care to throw themselves away. At this moment they consider and take stock of the situation."

Lord Faide at last left the parapet, signaling Hein Huss to follow. He went to his trophy room, threw himself into a chair, motioned Hein Huss to be seated. For a moment he fixed the jinxman with a cool calculating stare. Hein Huss bore the appraisal without discomfort.

"You are Head Jinxman," said Lord Faide finally. "For twenty years you have worked spells, cast hoodoos, performed auguries—more effectively than any other jinxman of Pangborn. But now I find you inept, and listless. Why is this?"

"I am neither inept nor listless. I am unable to achieve beyond my abilities. I do not know how to work miracles. For this you must consult my apprentice Sam Salazar, who does not know either, but who earnestly tries every possibility and many impossibilities."

"You believe in this nonsense yourself! Before my very eyes you become a mystic!"

Hein Huss shrugged. "There are limitations to my knowledge. Miracles occur—that we know. The relics of our ancestors lie everywhere. Their methods were supernatural, repellent to our own mental processes—but think! Using these same methods the First Folk threaten to destroy us. In the place of metal they use living flesh—but the result is similar. The men of Pangborn, if they assemble and accept casualties, can drive the First Folk back to Wildwood—but for how long? A year? Ten years? The First Folk plant new trees, dig more traps—and presently come forth again, with more terrible weapons: flying beetles, large as a horse; wasps strong enough to pierce armor, lizards to scale the walls of Faide Keep."

Lord Faide pulled at his chin. "And the jinxmen are helpless?"

"You saw for yourself. Isak Comandore intruded enough into their

consciousness to anger them, no more."

"So then—what must we do?"

Hein Huss held out his hands. "I do not know. I am Hein Huss, jinxman. I watch Sam Salazar with fascination. He learns nothing, but he is either too stupid or too intelligent to be discouraged. If this is the way to work miracles, he will work them."

Lord Faide rose to his feet. "I am deathly tired. I cannot think, I must sleep. Tomorrow we will know more."

Hein Huss left the trophy room, returned to the parapet. The ring of First Folk seemed closer to the walls, almost within dart-range. Beyond them and across the moors stretched a long pale column of marching First Folk. A little back from the keep a pile of white material began to grow, larger and larger as the night proceeded.

Hours passed, the sky lightened; the sun rose in the east. The First Folk tramped the downs like ants, bringing long bars of hardened foam down from the north, dropping them into piles around the keep, returning into the north once more.

Lord Faide came up on the parapet, haggard and unshaven. "What is this? What do they do?"

Bernard the sergeant responded. "They puzzle us all, my lord."

"Hein Huss! What of the other keeps?"

"They have armed and mounted; they approach cautiously."

"Can you communicate our urgency?"

"I can, and I have done so. I have only accentuated their caution."

"Bah!" cried Lord Faide in disgust. "Warriors they call themselves! Loyal and faithful allies!"

"They know of your bitter experience," said Hein Huss. "They ask themselves, reasonably enough, what they can accomplish which you who are already here cannot do first."

Lord Faide laughed sourly. "I have no answer for them. In the meantime we must protect ourselves against the wasps. Armor is useless; they drive us mad with mites. . . . Bernard!"

"Yes, Lord Faide."

"Have each of your men construct a frame two feet square, fixed with a short handle. To these frames should be sewed a net of heavy mesh. When these frames are built, we will sally forth, two soldiers to guard one half-armored knight on foot."

"In the meantime," said Hein Huss, "the First Folk proceed with their plans."

Lord Faide turned to watch. The First Folk came close up under the walls, carrying rods of hardened foam. "Bernard! Put your archers to work! Aim for the heads!"

Along the walls crossbowmen cocked their weapons. Darts spun down into the First Folk. A few were affected, turned and staggered away; others plucked away the bolts without concern. Another flight of bolts, a few more First Folk were disabled. The others planted the rods in the

moss, exuded foam in great gushes, their back-flaps vigorously pumping air. Other First Folk brought more rods, pushed them into the foam. Entirely around the keep, close under the walls extended the mound of foam. The entire ring of First Folk now came close and all gushed foam; it bulked up swiftly. More rods were brought, thrust into the foam, reinforcing and stiffening the mass.

"More darts!" barked Lord Faide. "Aim for the heads! Bernard—your men, have they prepared the wasp-nets?"

"Not yet, Lord Faide. The project requires some little time."

Lord Faide became silent. The foam, now ten feet high, rapidly piled higher. Lord Faide turned to Hein Huss. "What do they hope to achieve?"

Hein Huss shook his head. "For the moment I am uncertain."

The first layer of foam had hardened; on top of this the First Folk spewed another layer, reinforcing again with the rods, crisscrossing, horizontal and vertical. Fifteen minutes later, when the second layer was hard the First Folk emplaced and mounted rude ladders to raise a third layer. Surrounding the keep now was a ring of foam thirty feet high and forty feet thick at the base.

"Look," said Hein Huss. He pointed up. The parasol roof, overhanging the walls, ended only thirty feet above the foam. "A few more layers they will reach the roof."

"So then?" asked Lord Faide. "The roof is as strong as the walls."

"And we will be sealed within."

Lord Faide studied the foam in the light of this new thought. Already the First Folk, climbing laboriously up ladders along the outside face of their wall of foam, were preparing to lay on a fourth layer. First—rods, stiff and dry, then great gushes of white. Only twenty feet remained between roof and foam.

Lord Faide turned to the sergeant. "Prepare the men to sally forth."

"What of the wasp nets, sir?"

"Are they almost finished?"

"Another ten minutes, sir."

"Another ten minutes will see us smothering. We must force a passage through the foam."

Ten minutes passed, and fifteen. The First Folk created ramps behind their wall: first, dozens of the rods, then foam, and on top, to distribute the weight, reed mats.

Bernard the sergeant reported to Lord Faide. "We are ready."

"Good." Lord Faide descended into the courtyard. He faced the men, gave them their orders. "Move quickly, but stay together; we must not lose ourselves in the foam. As we proceed, slash ahead and to the sides. The First Folk see through the foam; they have the advantage of us. When we break through, we use the wasp nets. Two foot soldiers must guard each knight. Remember, quickly through the foam, that we do not smother. Open the gates."

The gates slid back, the troops marched forth. They faced an unbroken blank wall of foam. No enemy could be seen.

Lord Faide waved his sword. "Into the foam." He strode forward, pushed into the white mass, now crisp and brittle and harder than he had bargained for. It resisted him; he cut and hacked. His troops joined him, carving a way into the foam. First Folk appeared above them, crawling carefully on the mats. Their back flaps puffed, pumped; foam issued from their vents, falling in a cascade over the troops.

Hein Huss sighed. He spoke to apprentice Sam Salazar. "Now they must retreat, otherwise they smother. If they fail to win through, we all smother."

Even as he spoke the foam, piling up swiftly, in places reached the roof. Below, bellowing and cursing, Lord Faide backed out from under, wiped his face clear. Once again, in desperation, he charged forward, trying at a new spot.

The foam was friable and cut easily, but the chunks detached still blocked the opening. And again down tumbled a cascade of foam, covering the soldiers.

Lord Faide retreated, waved his men back into the keep. At the same moment, First Folk, crawling on mats on the same level as the parapet over the gate laid rods up from the foam to rest against the projecting edge of the roof. They gushed foam; the view of the sky was slowly blocked from the view of Hein Huss and Sam Salazar.

"In an hour, perhaps two, we will die," said Hein Huss. "They have now sealed us in. There are many men here in the keep, and all will now breathe deeply."

Sam Salazar said nervously, "There is a possibility we might be able to survive—or at least not smother."

"Ah?" inquired Hein Huss with heavy sarcasm. "You plan to work a miracle?"

"If a miracle, the most trivial sort. I observed that water has no effect on the foam, nor a number of other liquids: milk, spirits, wine or caustic. Vinegar, however, instantly dissolves the foam."

"Aha," said Hein Huss. "We must inform Lord Faide."

"Better that you do so," said Sam Salazar. "He will pay me no heed."

XIII

Half an hour passed. Light filtered into Faide Keep only as a dim gray gloom. Air tasted flat, damp and heavy. Out from the gates sallied the troops. Each carried a crock, a jug, a skin, or a pan containing strong vinegar.

"Quickly now," called Lord Faide, "but careful! Spare the vinegar, don't throw it wildly. In close formation now—forward."

The soldiers approached the well, threw ladles of vinegar ahead. The foam crackled, melted.

"Waste no vinegar," shouted Lord Faide. "Forward, quickly now; bring forward the vinegar!"

Minutes later they burst out upon the downs. The First Folk stared at them, blinking.

"Charge," croaked Lord Faide, his

throat thick with fumes. "Mind now, wasp nets! Two soldiers to each knight! Charge, double-quick. Kill the white beasts."

The men dashed ahead. Wasp-tubes were leveled. "Halt!" yelled Lord Faide. "Wasps!"

The wasps came, wings rasping. Nets rose up; wasps struck with a thud. Down went the nets; hard feet crushed the insects. The beetles and the lizard-centipedes appeared, not so many as of the last evening, for a great number had been killed. They darted forward, and a score of men died, but the insects were soon hacked into chunks of reeking brown flesh. Wasps flew, and some struck home; the agonies of the dying men were unnerving. Presently the wasps likewise decreased in number, and soon there were no more.

The men faced the First Folk, armed only with thorn-swords and their foam, which now came purple with rage.

Lord Faide waved his sword; the men advanced and began to kill the First Folk, by dozens, by hundreds.

Hein Huss came forth, and approached Lord Faide. "Call a halt."

"A halt? Why? Now we kill these bestial things."

"Far better not. Neither need kill the other. Now is the time to show great wisdom."

"They have besieged us, caught us in their traps, stung us with their wasps! And you say halt?"

"They nourish a grudge sixteen hundred years old. Best not to add another one."

Lord Faide stared at Hein Huss. "What do you propose?"

"Peace between the two races, peace and co-operation."

"Very well. No more traps, no more plantings, no more breeding of deadly insects."

"Call back your men. I will try."

Lord Faide cried out, "Men, fall back. Disengage."

Reluctantly the troops drew back.

Hein Huss approached the huddled mass of purple-foaming First Folk. He waited a moment. They watched him intently. He spoke in their language.

"You have attacked Faide Keep, you have been defeated. You planned well, but we have proved stronger. At this moment we can kill you. Then we can go on to fire the forest, starting a hundred blazes. Some of the fires you can control. Others not. We can destroy Wildwood. Some First Folk may survive, to hide in the thickets and breed new plans to kill men. This we do not want. Lord Faide has agreed to peace, if you likewise agree. This means no more death traps. Men will freely approach and pass through the forests. In your turn you may freely come out on the moss. Neither race shall molest the other. Which do you choose? Extinction—or peace?"

The purple foam no longer dribbled from the vents of the First Folk. "We choose peace."

"There must be no more wasps, beetles. The death traps must be disarmed and never replaced."

"We agree. In our turn we must

be allowed freedom of the moss."

"Agreed. Remove your dead and wounded, haul away the foam rods."

Hein Huss returned to Lord Faide. "They have chosen peace."

Lord Faide nodded. "Very well. It is for the best." He called to his men. "Sheathe your weapons. We have won a great victory." He ruefully surveyed Faide Keep, swathed in foam and invisible except for the parasol roof. "A hundred barrels of vinegar will not be enough."

Hein Huss looked off into the sky. "Your allies approach quickly. Their jinxmen have told them of your victory."

Lord Faide laughed his sour laugh. "To my allies will fall the task of removing the foam from Faide Keep."

XIV

In the hall of Faide Keep, during the victory banquet, Lord Faide called jovially across to Hein Huss. "Now, Head Jinxman, we must deal with your apprentice, the idler and the waster Sam Salazar."

"He is here, Lord Faide. Rise, Sam Salazar, take cognizance of the honor being done you."

Sam Salazar rose to his feet, bowed.

Lord Faide proffered him a cup. "Drink, Sam Salazar, enjoy yourself. I freely admit that your idiotic tinkerings saved the lives of us all. Sam Salazar, we salute you, and thank you. Now, I trust that you will put frivolity aside, apply yourself to your work and learn honest jinxmanship. When the time comes, I promise that you shall find a lifetime of employment at Faide Keep."

"Thank you," said Sam Salazar modestly. "However, I doubt if I will become a jinxman."

"No? You have other plans?"

Sam Salazar stuttered, grew faintly pink in the face, then straightened himself, spoke as clearly and distinctly as he could. "I prefer to continue what you call my frivolity. I hope I can persuade others to join me."

"Frivolity is always attractive," said Lord Faide. "No doubt you can find other idlers and wasters, runaway farm boys, and the like."

Sam Salazar said staunchly, "This frivolity might become serious. Undoubtedly the ancients were barbarians. They used symbols to control entities they were unable to understand. We are methodical and rational; why can't we systematize and comprehend the ancient miracles?"

"Well, why can't we?" asked Lord Faide. "Does anyone have an answer?"

No one responded, although Isak Comandore hissed between his teeth and shook his head.

"I personally may never be able to work miracles; I suspect it is more complicated than it seems," said Sam Salazar. "However, I hope that you will arrange for a workshop where I and others who might share my views can make a beginning. In this matter I have the encouragement and

the support of Head Jinxman Hein Huss."

Lord Faide lifted his goblet. "Very well, Apprentice Sam Salazar. Tonight I can refuse you nothing. You shall have exactly what you wish, and good luck to you. Perhaps you will produce a miracle during my lifetime."

Isak Comandore said huskily to Hein Huss, "This is a sad event! It signalizes intellectual anarchy, the degradation of jinxmanship, the prostitution of logic. Novelty has a way of attracting youth; already I see apprentices and spellbinders whispering in excitement. The jinxmen of the future will be sorry affairs. How will they go about demon-possession? With a cog, a gear and a push button. How will they cast a hoodoo? They will find it easier to strike their victim with an axe."

"Times change," said Hein Huss. "There is now the one rule of Faide on Pangborn, and the keeps no longer need to employ us. Perhaps I will join Sam Salazar in his workshop."

"You depict a depressing future," said Isak Comandore with a sniff of disgust.

"There are many futures, some of which are undoubtedly depressing."

Lord Faide raised his glass. "To the best of your many futures, Hein Huss. Who knows? Sam Salazar may conjure a spaceship to lead us back to home-planet."

"Who knows?" said Hein Huss. He raised his goblet. "To the best of the futures!"

THE END

IN TIMES TO COME

Next month's issue starts off with Christopher Anvil's "Foghead." Hal Clement's specialty has been development of detailed examination of the life-conditions under really alien conditions—"Mission of Gravity," "Iceworld," and his recent "Close to Critical." Anvil has been taking a different slant—the general foul-up of plans that results when intelligent entities alien to an environment start trying to live there. "Pandora's Planet" and "The Gentle Earth," for example. In those two, aliens got into trouble on Earth.

In "Foghead," Anvil proves he's really not anti-alien; you think, maybe, human beings couldn't get just as thoroughly bollixed up? And even without any conscious opposition at all!

THE EDITOR.

TOP RUNG

BY CHRISTOPHER ANVIL

The man on the bottom has one sure security; he can't fall down. But the man on the top has a sure insecurity—there's something he can't do, too....

Illustrated by van Dongen

JAMES L. KEVV, newly-appointed ambassador to Knackruth, stood up as the Secretary of State opened the door of his inner office. Kevv said, "Good morning, sir."

The Secretary of State eyed Kevv critically. "Come in," he growled. He studied Kevv's trouser creases, glanced at Kevv's shoes, squinted dubiously at Kevv's tie, grunted, and shut the door. He walked over to his desk and growled, "Sit down."

Kevv frowned and slowly sat down. The secretary scowled at him like a rocket engineer looking over an engine of doubtful design. "Hm-m-m," he said finally. "What do you know about Knackruth?"

Kevv took a deep breath and relaxed, "Knackruth's the fourth planet of the sun Ostrago III. Principal export, quadrite. Form of government, heterogenous independent states. The leading state is Gurt."

"You realize that for all intents and purposes, you will actually be ambassador to Gurt?"

"Yes," said Kevv. "I realize that."

"And what kind of government does Gurt have?"

"It's called an 'elective monarchy.' Actually, it amounts to a dictatorship."

The secretary seemed to relax slightly. "Know the language?"

"Of course."

"What do you think of it?"

"Well, it can be pretty straightforward and direct."

The secretary took out a thick black cigar. He studied Kevv with what looked like the first microscopic beginnings of approval. "For instance?"

"Well," said Kevv, "if a man wants to compliment a girl, using the Gurt language, he has a hard time being subtle. About the most roundabout thing he can say is, she 'heats his blood.' "

The secretary nodded and settled back in his chair. "What's the climate like?"

"It's mostly extreme—a sodden spring and fall; a hot, dusty summer; in the winter, blizzards and severe cold."

"Hm-m-m." The secretary opened a drawer, and pulled out a long wooden match with a big pink head. "Now," he said, "you've never actually been in Gurt?"

"No. But I've read a good deal in the native tongue. I think I have a working picture of the country."

"That's a help," said the secretary. "But I'll be brutally frank with you. Earth needs quadrite. Gurt has quadrite. It's important that you get along with the Gurt dictator, and I can tell you right now that is no easy job. Up till now, we've used military men for ambassadors, and limited their stay to one year. One year was about all they could stand."

Kevv blinked. "Why?"

The secretary touched the edge of his desk, and the lights in the room faded. His voice came to Kevv out of the blackness.

"Our last ambassador presented his papers with sight-and-sound recorders sewn into his suitcoat, so I can explain it to you very clearly. Turn your chair so you're facing toward the wall to your right."

Kevv turned. At his side there was a scraping snap, and the secretary's face and hands appeared cupped about yellow murky flames. The flames waved in the air and went out. The reek of burnt wood and hot fish oil filled the room.

"That," said the secretary, "was a Gurt match." A red glow the size of a man's thumbnail brightened and darkened. An odor like overheated rubber began to seep across the room. "This," said the secretary, puffing, "is a Gurt cigar. The dictator is very fond of them. He smokes them constantly." The secretary

coughed. "*Whew.* Well—" Kevv choked on an overpowering stench like burning rubber, flue gas, and sulfur fumes. "There," said the secretary's voice, "now we have the right background." He sucked in a whistling breath. "Now just imagine you're going in to present your credentials on Gurt. Watch that wall opposite."

Kevv sucked in a breath of smoke. His eyes watered, and a sharp pain shot across his forehead. "O.K.," he said.

A room seemed to light up around him, with a low ceiling, and unshielded lights set at six-foot intervals along the wall. The room was bare, and Kevv sat on a chair in a thick layer of smoke that hung about three feet above the floor, its bottom edge as clearly defined as a cloud-bank. Opposite Kevv was a heavy door with a peephole. To the left of the door, a snout like that of a machine gun was thrust out a slit in the wall, and aimed at Kevv. In front of the door, like a mat, lay a polished metal plate, with a black rubber cord plugged into a socket at the base of the wall nearby. The doorknob was of polished metal the exact color of the plate. To the right of the door, something long, bright, and thin, flicked out and back like a snake's tongue. Kevv watched, and saw it was a highly-polished blade, that flashed out sometimes toward the space before the door, and sometimes over the black cord.

The door opened. A man wearing a gray-and-blue uniform with silver insignia glanced at Kevv, looked around at the gun and the long sharp knife. He said dryly, "Vrin, ven tu dupit nal spung, spoopt, slitzt ater ossonplopt."

After an instant's hesitation, Kevv caught his meaning: "Come in, if you can do it without getting shot, fried, slit open, or squashed."

The officer stepped back, and a massive block of concrete dropped about a foot-and-a-half from the ceiling near the doorway. The block hung on a taut cable, turning slowly.

Kevv's viewpoint shifted rapidly. Walls and door swung sidewise and rushed forward. The polished plate flashed past below. The floor came up. Behind him there was a heavy shock and echoing blasts. His viewpoint shifted again, and he was standing in a room filled with smoke, and lined along the wall with maps. The Gurt officer in gray-and-blue helped brush him off.

"Nice jump," said the officer. He straightened up. "No doubt you will want to strike light with our ruler. But right now he has his teeth in General Potakel. Look there."

Kevv glanced around and saw, through the smoke, a powerfully-built man of above average height, a black, smoking cigar jutting out of the corner of his mouth, his hand gripping a fistful of a pale officer's gray-and-blue uniform jacket. Words were flying thick and fast, and both men's faces were twisted with violent emotions.

"Damn it!" shouted the general.

"I tell you, we've got to retreat!"

"Not an inch!" roared the ruler. "We're going to attack!"

"Attack? Thundering damnation! What with? I tell you, I've got a fourth of my men up to their ears in that sinkhole! The Znyth line's a fortress from one end to the other. With twenty-five per cent of my men half-drowned in Bogmurk, I couldn't lead a decent attack on an army of starving cows!"

"All right, you've made your point. Now stop using your mouth for a minute and use your head. We aren't fighting cows, we're fighting Znyth! How many times in the last couple of hundred years have they chopped us into pieces? You want that to go on forever?"

"No. But now we've got them out of the country—"

"And who planned that?"

"You did. I concede that. I give you full credit. But this is risky, dangerous. If the Znyth attack us while we're mired in the swamp—"

"Didn't you tell me the Znyth line was a fortress from end to end? Didn't they just get collected from their worst licking in two hundred years? Do you think their minds and emotions are fit for an attack? I tell you, they're grown into the earth in their fortress line! They'll fight in it. But they won't come out of it. Not yet. Wait till they mend their wounds and brood on their defeat and then it will be another matter. The idea is, smash them now and *end* this hell!"

"Yes, fine, but the swamp is impassible, and their line is too strong. Unless, my ruler, we take twenty divisions from Santok's front—"

"What a bright idea *that* is. Take those twenty divisions and the Ghisrans will have us ground up and stuffed in sausage skins before we know what hit us. Your mind is working like a loadbeast with its head down and all four heels dug into the ground. You can't see the answer unless you *listen* to me."

"My ruler, I have listened. But I tell you—"

"Listen again. Don't just stand there waiting for me to finish so you can pound your argument into my head. Put your mind on what I say and listen hard. There are only so many things we *can* do. If we attack the Znyth defenses head on, we fight on their ground, with everything planned and laid out to their advantage; and they'll fight to the death on the spot, while some of our men will hesitate because they see how strong the Znyth position is."

"I see that."

"Good. And right now we can't switch men from other places. There's too much danger. To do that now would be like pulling stones out of a thin dike in one place to build it higher in another. Furthermore there is no use hoping we can raise new troops fast enough to change matters, because the Znyth, too, get reinforcements. All that leads to is more men on both sides. And, of course, we can try to make peace with them. Since they look forward to

chopping us into little pieces as soon as possible, you can see what that would be like."

The general shook his head. "Yes, my ruler, I see. Still—"

"Hold on a minute. Listen to me. The west end of their fortified line rests on Bogmurk. They think the big swamp is impassable, so it isn't defended—"

"Yes, yes. But—"

"All right. Here's the key to the whole problem. Build the causeway through Bogmurk. Mass our main strength on the left flank. Pour the troops over the causeway and stab like a knife into the rear of their line. And right then, a hard attack from in front. A sledgehammer blow on the hinge at the same instant the bolts are sheared from in back—"

"Yes, yes, but this swamp drains the men that ought to attack!"

"What do you expect? Do you want to stroll through on a purple carpet? If we lose one out of the four in that swamp, the three remaining are still worth ten!"

"My ruler, you don't know. You haven't seen— Mud, fog, drizzle, quicksand, snakes, clouds of stinging bugs, half-an-acre out of a hundred dry enough to camp on—"

"If it were easy, the Znyth would do it themselves."

"The men are worn out, discouraged—"

"Did you come here just to tell me that? Get it across to them what they're doing. Tell them what it means. Give them honest reasons and they'll give you honest work. Do you think they'll be worn out when the Znyth scatter in front of them like leaves in the wind? Every step through that swamp is a step closer to that. Show them that, and think what it will mean to *you*. Now, get out of here. Put your mind on it. You keep coming back here to yell complaints in my ear and you'll end up with your head in a basket."

Kevv had the vague impression of someone stepping forward. Then it all faded out, and he was sitting in the dark.

A light switched on. The Secretary of State looked at Kevv with a rueful smile. "I wanted to give you some idea of what you're getting into. My understanding is, that was a comparatively calm day on Gurt. Now you're forewarned, I think you can appreciate these better. Study them carefully." He shoved forward a thick stack of papers and microfilm, and reached out to shake Kevv's hand.

Kevv boarded the big, spindle-shaped spacer the next day. He immersed himself in the documents, and one word beat at him from nearly every page: quadrite. Earth needs quadrite. Quadrite is rare. Gurt has quadrite. Gurt has kept her agreements faithfully, and Gurt must be protected to safeguard the quadrite.

Kevv scowled, scanned the microfilm and studied the reports. Quadrite, he knew, was used to stabilize the drive tuning of Earth's interstellar fleet. He began to see the importance of Gurt in helping to supply quadrite, and he began to see his own job in

helping to defend this supply. The only question was: How? Vigorous digging through the reports unearthed the fact that the total investment in Gurt seemed to consist of one ambassador, one communications technician, a general practitioner and a lung specialist.

Kevv spent the rest of the trip absorbing information and exasperatedly trying to understand the situation. But a piece of the puzzle eluded him. His first act in landing on Gurt was to see Colonel Martins, the retiring ambassador.

Martins turned out to be a weary-looking elderly man with a ramrod back and a twitching left eye. He also had a look of contentment. He greeted Kevv cheerfully, and after a few words lay down on a cot.

"Excuse me," he said. "I'm a little tired. It helps to get off my feet." His face settled into an expression of contented achievement.

Kevv, noting the expression, said, "I don't mean to sound trite, but is this assignment here a . . . er . . . a rewarding experience?"

Martins grinned. "Not exactly. But leaving here certainly is rewarding."

"Oh."

"No, I don't mean that exactly, either. Some experiences are rewarding after you're out of them. For instance, shooting the Belt at six g's in a scout spacer after an unsuspecting dope runner in a converted Class-B cruiser."

"That sounds nice," said Kevv, without enthusiasm.

"This has it beat," said Martins.

"What do I do?"

"First go see the Doc, get your nose plugs fitted. Try not to take a breath with your mouth open when you're around the ruler. And don't let your plug charges get run down or the effect is just as bad. If you have to smoke a ceremonial cigar yourself, don't inhale any more than you have to. Ah . . . oh, and you might as well get your audience over today, one way or the other. Pray first. When your time comes, wait till the sword takes a stab toward the door, then go through that doorway *fast*. Take a flying leap over that plate, and don't brush the doorknob."

"What," said Kevv exasperatedly, "is the point of that thing, anyway?"

"The theory is, if you have any treachery in mind, you'll hesitate. That's all it takes. But if you get through, you're O.K. You only have to do it once."

"Assuming I live through it, exactly what is my function here?"

"You come back afterward, and I'll give you a few pointers."

"No," said Kevv, "maybe you'd better tell me now."

"You can take it in better after you have an audience with the ruler. Just act natural and you'll be O.K. It's hard to explain."

"Can't you at least give me an idea?"

"Well—" Martins hesitated. "O.K. What does an absolute ruler have that his followers don't have?"

"Position. Final authority."

"And what do the followers have that the ruler doesn't have?"

Kevv frowned. "Well—" He tried to analyze the problem, but it evaded his grip like smoke. "I don't know."

"Figure it out," said Martins. "Now, unless you want to get fumigated at the audience, you'd better get your plugs. It's bad enough with them, believe me."

Kevv located the Doc, who went to work on him with pincers, hoses, and thimblelike objects of varying sizes. The Doc had a gift for one-sided conversation, and a grip that held Kevv struggling but helpless with his head bent over the back of a chair. In the end, Kevv wavered off to the audience with his own built-in air purifier.

"Vrin," said the officer in gray-and-blue, "ven tu dupit nal spung, spoopt, slitzt ater ossonplopt."

Kevv prayerfully watched the blade lick out past the door, took a flying leap, heard a heavy crash and a hammering blast behind him, and stumbled to his feet. He expected to hear roars of rage, oaths and orders, but the smoky room was almost oppressively quiet. Somewhere, a voice said, "Yes, my ruler."

At Kevv's elbow, the officer remarked, "We've conquered Znyth. Think of it."

Kevv frowned, and saw the ruler wandering amongst groups of officers gathered around maps and tables. The ruler's face was an unhealthy gray, and he was being followed around by an eager little man with pad and pencil. The ruler took a burnt-out cigar out of one corner of his mouth, walked up to an officer at a map marked off in squares, frowned, started to say something, and hesitated. The officer glanced around and snapped to attention. "Yes, my ruler?"

"Nothing." The ruler grimaced, "I was just thinking of something to occupy our friends for the future."

The officer looked impressed. The little man raised his notebook and scribbled rapidly. The ruler looked gloomy, glanced up and spotted Kevv. "Aha!" he said. "You made it!"

Kevv nodded, and watched in alarm as the ruler cheerfully tossed away his burnt-out cigar and pulled out two big black fresh ones.

The little man rushed over, snatched up the cigar butt, and laid it away reverently in a plush-lined case.

The ruler glanced around, glared, started to open his mouth, the lips drawn back from his teeth, took a deep breath, glanced back at Kevv, studied him a moment, and looked relieved. He thrust out a cigar. "One of my own specials. This one's really got a bite." He struck a big match and held the flaring stick out for Kevv to get a light. "Suck it deep into your lungs," he said.

Kevv, half-strangled, the room swimming before his eyes, blew out a cloud of burning smoke and nodded with imitation enthusiasm.

"Aha," boomed the ruler, clapping

him on the arm, "follow me back to my office. I'll show you where I make them."

Kevv wiped his arm across his eyes. Live sparks seemed to dance in the air before him. Clutching the smoldering cigar in one hand, he trailed after the ruler down a short hall, around a corner, and past two padded doors hinged from opposite sides of the same doorway to close against each other.

The ruler closed and locked both doors, and glanced suspiciously around the little room. He pointed to a small bench with several boxes, a covered jar, and a brush. "That's where I make the cigars," he said absently. He glanced around, took a deep breath, then burst out:

"Did you see that bird out there with the plush-lined box? What do you make of that? If I spit out a fleck of leaf—Pop. Into the box with it. Why? He says he's a historian. General Krakel vouches for him. All right, but what's this business with the cigars! Is he, maybe, going to analyze the leaf, find out where it comes from, and scatter poisoned insecticide around the crop, to be taken in as the plant grows?" He frowned. "That sounds foolish, now I say it, but what *is* he doing with those cigar butts?"

Kevv sucked a breath through his nose filters. "Probably try to sell them for historical souvenirs—the ruler's own cigar butts—or maybe put them in a museum with his name on the case as donor. It looks to me like he's getting material together for something on a par with that."

"You think so? Well, it's a stupid thing, but then, the whole business is stupid. Did you see those people out there? Every time I open my mouth to yawn or sneeze, somebody's right there on the spot to say, 'Yes, my ruler.' You should have seen them three months ago. It wasn't 'Yes, my ruler,' then. It was, 'No, no! You can't do it that way! That's impossible!' What's gotten into them anyway? I feel like a man who gets set to lift the iron weight and instead it's made out of hollow blackened wood. It isn't natural. Everything I do seems just perfect, but—"

He scowled. "There's a danger here." He squinted and walked back and forth. "Yes. Here's the danger. What if I get used to this? When everybody says 'yes,' and they don't think, *I* have to do it all. And then I won't get it right because I . . . even I"—he glanced at Kevv, looked foolish, and added hastily—"Well, we're all human. What if I make a botch of it? Then they'll come out of their stupor. Meanwhile, I'll have gotten to think of myself as The Great Ruler. I won't *be* myself. I'll be acting the part of The Great Ruler. Then everything will fly apart and I won't be able to do anything because I'll have lost the threads that make the pattern." He sucked in a deep breath. "Well, I'm glad I see that. When you've got light to see the hole, you've got a chance to put your foot somewhere else." He opened the two doors.

Kevv, dumfounded, followed the ruler out. As they returned to the main room with the maps, the ruler turned around, and raised his smoking cigar. "Some day I'll show you how I make them."

"Oh." said Kevv. "Yes. I'd . . . er . . . I'd like to see that."

The ruler strode across to the little man with the pad, paper, and box, and thrust a fresh cigar into his hand. "Here. Take this. Then get out."

An officer with a hero-worshiping expression stepped forward. "He is taking down your words, my ruler—for the future."

The ruler fired up a fresh cigar and fixed his gaze on the little man. "It has been not bad to have you here, but now secret events are about to take place and you must loyally get out."

The little man reverently laid away the cigar in the box, seized another discarded butt, scribbled rapidly, and left.

"Now," growled the ruler, "let's see how we're going here. The idea is to find the mistake you make and bash it over the head before it grows up and has a family." He scowled, went over to a big map, and a crowd gathered. He stuck his head through the crowd to take a quick look at Kevv, looked reassured, and vanished again.

Kevv glanced at his half-burnt cigar, pulled over a chair, sat down heavily and frowned.

"What do the followers have that the ruler doesn't have?"

By the time Kevv got back to see Martins, he felt worn out. Martins, however, looked considerably fresher and stronger.

"All right," said Kevv. "I lived through the audience. Now, suppose you tell me what's going on here. What's my function, anyway?"

"What happened?" asked Martins.

Kevv told him, and added, "You know that saying, 'Power corrupts.' Well, I could swear I saw power corrupting when I got here. Then all of a sudden it quit."

Martins nodded. "That's the point of it all. Earth has to safeguard Gurt's quadrite supply. And as far as we can see, the present ruler is the greatest single safeguard that Gurt has—if he doesn't go off the deep end."

"You mean, get delusions of grandeur?"

"Partly. Think of what became of most of our emperors and dictators on Earth in the old days: Secrecy, suspicion, fear of plots, seizure of crushing authority, then overwork, frustration, rage, megalomania, and disaster on a grand scale. We don't want it to happen to Gurt."

"Yeah, but how do we stop it?"

"Well, remember: What do the followers have that the absolute ruler doesn't have? Think of the kind of life they live. You can look on success in their kind of life as a ladder. Once you can get to the foot of it and start up, you don't have to worry about larger questions—like where you're climbing to. The idea is to just get up to that next rung. There's

somebody above you, and somebody below you. You just keep climbing and putting rungs behind you. O.K. But what if you're on the top rung? Your head thrusts up into the open air. There's no place higher to climb to. You look down and it's a long fall. Maybe it dawns on you that that fellow one rung below wants to keep climbing, and there's no place for you to go but off. There's no one above to serve as an example, no equal to trust. Nobody you can talk to, and nothing to keep you from going off the deep end but your own self-control."

Kevv frowned, then slowly began to nod his head. "I think I begin to get it."

Martins leaned forward. "Look at it from their point of view. You're the man from the stars. The ladder goes up and up, out of sight, and, if they can't grasp the next rung, you're living proof that it's there."

"Yes," said Kevv. "I think I see. And I can be trusted, because I'm not in the competition." He thought over his meeting with the ruler, then said abruptly, "But it's a strenuous life."

"Well," said Martins, complacently tossing a pair of socks in a suitcase, "it may be a little rough on you, but it's a great thing for Earth. Think of the quadrite." He grinned suddenly. "Besides, you get your reward at the end." He fished through a half-packed trunk and pulled out a small wooden case. "Here. Open it."

Kevv somberly raised the cover and looked in.

"Just as I thought," he said. "Well, I've heard you can stand almost anything if you can get enough sleep, and I intend to try it."

Kevv stood up. "But as for this reward, I'll leave it with you."

He handed back to Martins, the box of big, thick, black, custom-made cigars.

THE END

THE ANALYTICAL LABORATORY

You, as readers, handed Eric Frank Russell a bonus of $100 for his story "Basic Right" in the April, 1958 issue. That's the first-place 1¢ a word bonus. Christopher Anvil's story "Revolt" you voted into second place, which means you thanked him with a $70 bonus, the ½¢ a word bonus.

I definitely do want your comments on the stories. Believe me, the authors pay most acute attention to your comments; the economic motive is paralleled perfectly by the satisfaction of having the accolade of having done a top-rank piece of work.

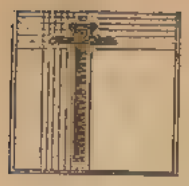
(*Continued on page 98*)

BUSINESS as USUAL, DURING ALTERATIONS

Science fiction is not exactly an orthodox, conventional literature. But even so, science fiction has its conventions—things "everybody knows." Like the economic destruction a matter duplicator is sure to produce....

BY RALPH WILLIAMS

Illustrated by Schoenherr



THE Sector Co-ordinator frowned, studying the report on his desk. In the concise symbology of socio-dynamic calculus, it still covered several pages. "Preposterous!" he said. "Utterly preposterous!"

The Chief of the Observation Team nodded. "Quite," he agreed. "Valid, though."

"But it's ridiculous. Your prognosis indicates complete self-extermination by the natives of this planet . . . uh . . . 'Earth,' in less than one Galactic quarter. It's . . . well, *preposterous!*"

"Exactly," the observer said.

"But we can't have it. We *need* this planet. The only inhabited system in fifty light-years, a civilization just on the verge of technological expansion, young, vigorous—and now, *this*. We'll have to assume direct control, move in a full administrative staff . . . why, it will cost billions, we could set up a colony of our own almost as cheaply. There must be a mistake." The Co-ordinator flipped back through the pages.

"Ah," he exclaimed. "Thought so. Here, this inter-group belligerence function, a purely inductive generalization which you apply in an unprecedented situation. Not valid. In effect, you are saying these people cannot adjust. Why, their whole history is one of adaptation—they take anything, absolutely anything, according to your observational data, and adapt it to their ends."

The Chief Observer nodded. "Individual ends, though, not social ends. That's the crux. Me first, to hell with the other guy. Works well enough when one man can't reach much farther than he can throw a rock, or shout orders more than a few hundred yards. Not so well, though, when you can say 'jump, frog,' to a whole continent at once, and back it up with hydrogen bombs. To control that level of power, you need cultural adaptability, instinctive or reasoned. These people don't have either." He paused and scratched thoughtfully at his chin, or what would have been his chin, if he had been human.

"I will admit, though, the math is a little shaky. So, we've prepared a check. With your approval, we intend to introduce a gadget to these people. Nonlethal, individually desirable, but culturally deadly—so presented that they can accept or reject it, with the choice spelled out for them. The beauty of it is, we kill two birds with one stone. If they accept—blooey goes their civilization, all we have to do is move in and fill the vacuum. If they reject, we don't have to move in, I'm wrong."

"What kind of gadget?"

"Well, what kind of gadget would do it? Remember, a highly competitive culture, based on economy of scarcity; things—property, or its use—exchanged for services on an individual basis . . ."

"The matter duplicator!"

"Exactly."

It was about midmorning, I suppose, when we began to hear the first rumors of the duplicator at Brown's.

One of the account clerks came running over to tell me about it during the morning coffee-break. The story was that someone had invented a machine which could reproduce instantly, out of thin air, any physical object. She had it from one of the other girls, who got it from an elevator operator, who got it from a customer.

In a big store like Brown's, with so many women working, you hear all kinds of rumor. "Well, that's certainly very interesting," I told her. "What won't they think of next! I'll have to be sure to catch the eleven o'clock news."

A few minutes later, however, Pete Martens in Appliances called up to tell me it was on TV. "You'd better take a look, Mr. Thomas," he said. "If this isn't a gag, it's something pretty big."

"Thank you, Pete," I said. "I'll be right down." I don't keep a TV in my office, it's a bad example to set for executive personnel, I feel.

There were several knots of customers and salespeople clustered around the demonstrators in Appliances. Pete saw me step out of the elevator and opened up a place. "Right here, Mr. Thomas," he said.

I nodded thanks and looked at the screen. A man sat behind a desk, talking. On the desk was a black box, a cube about ten inches on a side, with two pans, side by side, on top—something like a kitchen scales. A red button was set in the face of the cube. Below it was a plate with some printing.

". . . Anything small enough to place on the pan," the man was saying, "absolutely anything." He picked up a pair of desk shears, tossed them on one pan, pushed the button. An identical pair instantly appeared on the other pan. He rummaged in his pocket, brought out a key ring, duplicated that. He took off his glasses, duplicated them.

"Or," he said, "you can do this. Hand me that other duplicator, please."A hand came into the picture, holding a contraption similar to the one the demonstrator had been using. He placed it on one pan, pushed the button, removed it and the duplicate. With a careless gesture, he swept the original machine off the desk. It crashed when it hit the floor. He smiled and looked into the camera.

"Don't worry, folks," he said. "There's plenty more where that came from." With the machine he had just made he duplicated another, another, another; until the desk was covered with them.

"How do they work?" I asked Martens.

He shrugged. "Nobody knows. There were a couple of them sitting on the city hall steps this morning. No name plates, no identification, just a tag telling how to work them and something about chipping foundations. They had the back off one just before you came down, it looks

like some sort of electronic gadget, but the studio engineers couldn't figure it out, so they sent a couple over to the university. Stumped them, too." He laughed nervously. "Maybe the Brownies left them."

". . . Just one thing to remember, folks," the TV was saying. I looked back at the screen. The duplicators had been removed, except for one, and the man was holding a hamster in the palm of one hand. "*Don't* try to duplicate little Johnny because he's so cute you'd like a dozen of him."

He placed the hamster on one pan, pushed the button. The duplicated hamster jumped high in the air at the moment of materialization and fell to the desk, jerking violently for a moment before it was still. The original crept to the edge of the pan and stared at it, nose twitching.

"Do you think it could be a hoax?" I asked Martens. "You know, trick photography, something like that?"

He shook his head. "I don't think so. It's on the other channels too, this fellow's putting on the best show, but they're all full of it. Radio, too."

"He's putting on a good show, all right." I looked at the customers around me, all hanging pop-eyed on the demonstrator's slightest move. "If we just had a few thousand of those things here in the store right now, with all this build-up—"

"Well, yes," Martens said. "It kind of scares me, though. You know, all those things, just make anything you want, as many as you want, zip, zip, zip, like that. What I mean, my brother *works* in a place where they make things like scissors. What about him?"

I nodded thoughtfully. "I see what you mean. That duplicator, it could be a whole factory in itself, no materials costs, no labor costs—why, it'll wreck the whole price structure. No buying, we can set up a few duplicators and make our own merchandise. No inventory, we stock just one of everything. Receiving? We wipe out the whole department. Warehousing? Ditto." I began to really see possibilities. "Pete," I said, "you're right, this is big, really big." I looked around for a phone. "I'd better call Mr. Brown right now."

Mr. Brown must have been watching the same program at home, I could hear it in the background, something about bigger duplicators now.

"Yes, I know, John." His voice sounded dead. "I've been watching it. Probably means the end of our whole economy, I suppose. Did you read what that tag on the machine said?"

"Martens said something about chipping foundations."

"I copied it down—just a minute—here it is. There was something about how to operate the machine, then this: *'Warning! A push of the button grants your heart's desire. It is also a chip at the foundations of human society. A few billion such chips will bring it crashing down. The choice is yours.'* Well, I guess

the chips are flying already. My General Motors stock—" He groaned.

Over in the appliance department I caught a glimpse of the screen. A toy automobile was on one pan of the duplicator. The announcer was using a toy crane to lift duplicates off the other pan, ranging them in neat rows on the desk top.

"But what about the store, Mr. Brown?" I asked.

"I don't know, John, I just don't know. You're there, you do the best you can, just hang tough till we see how things are going to work out."

Hang tough! In this business, people who hang tough and wait to see how things work out get plowed under. If you want to stay in business, you get on top of trends and move with them. Well, Mr. Brown used to be a real merchant, he built Brown's up from a corner variety store; but that was forty years ago and we all get old.

"O.K., Mr. Brown," I said. "I'll do what I can."

"Fine, John, I know you will."

He hung up. Before I could do the same, the operator broke in. "Oh, Mr. Thomas," she said. "Mrs. Jones wants you in Ladies' Wear, she says it's emergency."

Mrs. Jones is one of those people to whom everything is an emergency, but Ladies' Wear is on the first floor, only a few aisles from the phone I had been using. "Thank you, Connie," I said. "I'll take care of it."

When I got over there, Mrs. Jones was flustering around a stocky, middle-aged man who was fooling with something on the wrapping counter. It was a duplicator. He was trying to balance another on one of the pans. It kept tipping until he got a pencil fixed under the pan as a prop. He stepped back a little. "Presto chango, abracadabra," he said, and pushed the button. The duplicator settled back on its base with a thump. There were now three of them—the original and one on each pan. The pencil fell away and rolled slowly off the counter. In the flesh, so to speak, it was a much more impressive operation than on TV.

He took one off, readjusted the pencil, and made another.

"You're the manager?" he asked me.

I nodded.

"How much?" He jerked his head at the two duplicators on the counter.

"I'm not sure I understand," I said cautiously. "You mean, you want to sell them to the store?"

"I do, indeed." He put the two original duplicators back in a cardboard carton and tucked in the flaps. "Come, come, I'm a busy man this morning. What have you got in the till there?"

It could be a con game, of course. Some sort of electronic flimflammery on the TV, and a confederate going down the street working sleight-of-hand in the business places— But, no, Mr. Brown had been getting it at home, too. Besides, it didn't *smell* like a con game. I rang "No Sale," took out the bills, and counted them —ninety-three dollars. I had guessed

wrong bigger than that a lot of times before. I laid the money on the counter.

"O.K., bud, you're in business," the man said. He picked up the money and carton, turned and shoved through the crowd of employees and customers. No one paid him any attention. They were too busy staring at the duplicators.

I picked one up and looked at it. It weighed about fifteen pounds, just a black metal box with some plumbing at the top supporting the two pans, and a button to push. Under the button was the tag with simple instructions: *"When you push the button, any object placed on one pan will be duplicated on the other,"* and then the warning Mr. Brown had read to me. A nice piece of merchandise, no doubt about it.

"I'll give you two hundred for them," one of the customers said impulsively.

"Just a moment, please," I told him. I adjusted one duplicator on the pan of the other as I had seen the demonstrator do, pushed the button and held my breath. It worked.

"Here you are, sir," I said. "The price will be $19.98. Mrs. Jones, take the sale, please."

I made several more, checking the action. There was nothing to it. Push the button, take one off, push the button again. By steadying the machine with your hand, you could get away from the pencil business.

The clerk from the next counter had been standing at my elbow, watching breathlessly. "Do you see how it's done?" I asked her. "You do? Good. Would you operate the machine, now? Just keep taking them off and pushing the button."

I looked around and saw the floor supervisor in the crowd. "Sam, get a couple of your people and clear off those blouses by the door. Handle the sales from there, no wrapping, cash and carry, $19.98 each, one to the customer. We'll use this counter to make them."

"Ah," a sardonic voice said at my side. "Business as usual, eh, while Rome burns." I knew the voice, as well as the style. Both belonged to George Beedle, our personnel manager. In the old days, before Dr. Elton Mayo invented Human Relations, personnel men were people who made out hire and fire slips, worked up wage rates and job qualifications, so forth. Now they are doctors of philosophy, fully prepared to instruct operating officers in the fine points of practical psychology, sociology, economics, epistemology, and the Sermon on the Mount. I enjoy arguing with George, it's amazing how erudite a person can be without having the slightest grasp of merchandising, but not when I have work to do.

"Go away, George," I said firmly. "I'm busy now."

He looked at me curiously. "Busy at what? Making money for Brown's? Here, let me show you how to do it the easy way."

He found a ten dollar bill in his

wallet, laid it on the pan of a duplicator. With his left forefinger, he pressed the button. As another ten dollar bill appeared, he flipped it off the pan with his right forefinger, pressed again, flipped again. "I often wonder," he said dreamily, "what the vintners buy—" press, flip, press, flip, press, flip. The air was full of ten dollar bills.

Two or three people started scrambling for them. The rest just stared.

I must confess I was flabbergasted, myself. This potentiality of the duplicator just had not occurred to me. Goods, yes, everybody makes goods, but only the government makes money—or perhaps I should say, used to make money.

"The market place, John," George said—press, flip, press, flip—"that's your little Republican tin god, and the lifeblood of the market place is money. What price money now?" He picked up one of the bills, creased it, touched his lighter to it, and lit a cigarette. "Good kindling, I suppose, if you have a fireplace."

"Uh, yes," I said. I pulled myself together. He was wrong, of course, in a general sense. About ten dollar bills, though, he was obviously right as rain. It was a dirty shame, just when we had an item as hot as these duplicators to move; but there it was. In the retail trade, you learn not to argue with facts or waste time in vain regrets. I caught Sam's eye and motioned him over. "No cash sales," I told him. "None whatever, personal checks only."

"Checks can be duplicated, too," George reminded me, but he looked a little uncertain.

"What for?" I said. "A check isn't legal tender, it's a specific order from a specific person to transfer credit in a specific way. I don't need a duplicator, I can write all the bad checks I want without one."

"Oh," George said.

I had been thinking while I was talking. A lot of those people looked like the kind who might not have checking accounts.

"Wait a minute, Sam," I said. "If they can't write a check, open a credit account for them. The main thing is, keep the merchandise moving. These duplicators are hot now, but they'll be dead as Moses tomorrow."

"Right, Mr. Thomas, gotcha," Sam said. He hurried back to his counter. I called up the Credit Department and made arrangements to handle the accounts. "If they've got a home address and a job," I said, "that's good enough. Get their signature and give them the merchandise."

George was still standing there, he had got back his normal self-assurance, a superior smirk on his face—the intellectual sophisticate, no Babbitt he, even if crass mercantile ventures did pay his salary. Sometimes George irritates me just a little.

"Well?" I said.

"Nothing," he murmured, "nothing at all. Just marveling at the business mind in operation. It's so beau-

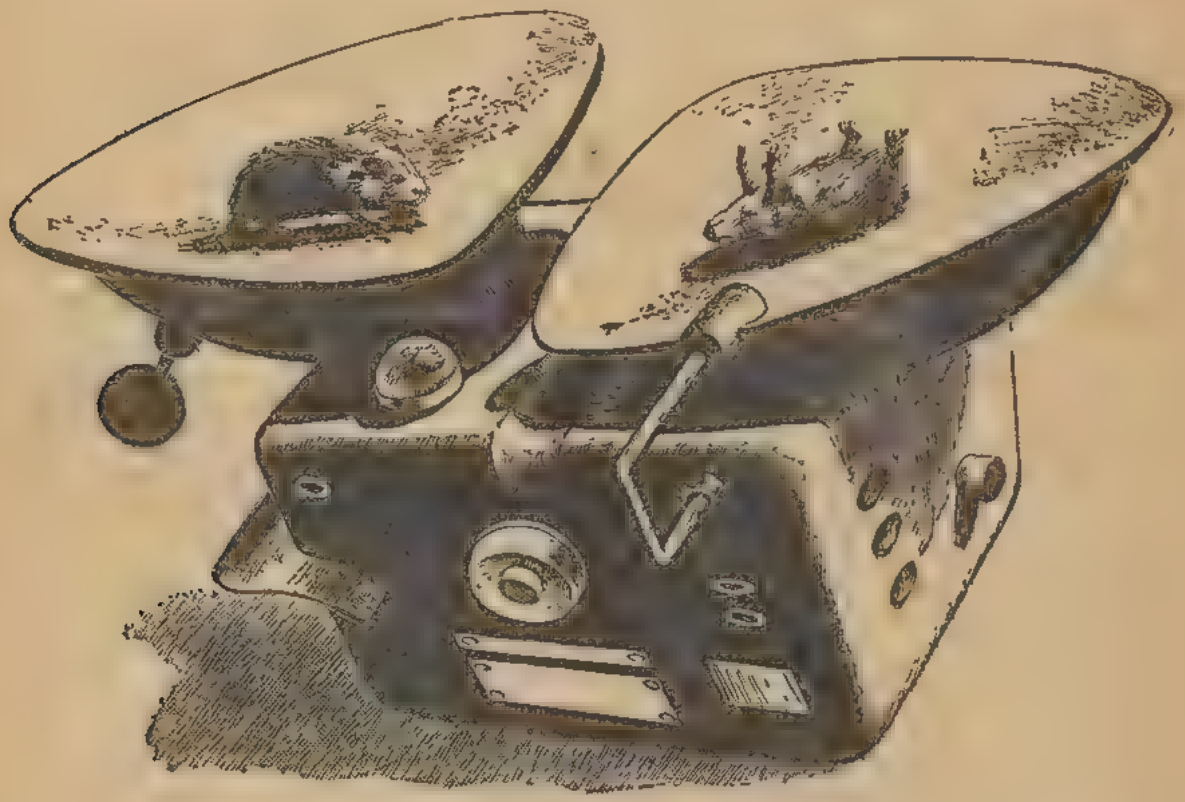
tifully oblivious. Here's a gadget that spells the absolute destruction of our economy. Are you worried? Only about how to make a fast buck spreading the plague."

There must have been two hundred customers milling around in Ladies' Wear now, the word had spread fast. The duplicators were coming in a steady stream from the wrapping counter. Two girls from the Credit Department had just stepped out of the elevator and were hurrying over with big stacks of contracts under their arms. "That's what I get paid for," I told George, "moving merchandise. Other people get paid for worrying about the social implications."

"Exactly. And someone *has* been worrying about them. You read that tag, didn't you?"

"I read it," I admitted. "So what? With all the button-pushing going on today, the few thousand I push won't make a bit of difference."

"It *will* make a difference. You just haven't stopped to think why that warning is there. Take a minute and stop thinking about these things as just a gadget people will pay twenty bucks for, think about what they can *do*. What happens to United States Steel when railroads can turn out all the rails they need, right on the ties ready to be spiked down, with a duplicator on a handcar? For that matter, what happens to the railroads when people can make their heavy freight on the spot, out of



nothing, and don't have to move it from one end of the country to the other? What happens to General Motors when anybody who wants a new Chevvy can borrow the neighbor's and make himself one? What happens to Westinghouse when Mrs. Jones can wander into Brown's with her duplicator under her arm, pick a new toaster off the counter and set it on the pan, walk out thirty seconds later with one of her own? If Westinghouse's troubles don't touch you, what happens to Brown's when she can do that? What happens—"

I didn't wait to hear any more. There's no getting around it, George does have a vivid way of putting things. I could see now he was right, I hadn't been thinking about this thing, just reacting. There was a phone at the next counter. "Connie," I said, "get me a conference hookup immediately, all department heads." My tone must have hinted that when I said immediately, I meant right now. The call chimes were already beginning to sound as I hung up.

The first customers had begun to get their duplicators. Most were hurrying out of the store, but a few lingered, eying merchandise speculatively. One woman with an avaricious glint in her eye and a purposeful swing to her heavy body elbowed through them and came toward a rack of expensive cocktail gowns. "George!" I said. "Watch the phone!" By the time I got there, she had picked a rather gaudy sample from the rack and was folding it to lay on the pan of her duplicator. I reached over her shoulder and picked it off before she could push the button.

"I'm sorry, madam," I said firmly. "We cannot allow customers to duplicate merchandise."

She glared at me belligerently. "Who says so?"

"The Law says so." Possibly this was not exactly true, but I did not give her time to think about it. "You are interested in this gown, madam?" I said. "Allow me." I put the dress back on the pan and pushed the button. "There you are," I said. I glanced at the price tag—$98.75. "The price is one dollar and ninety-eight cents. You have your credit card?" She nodded uncertainly, looking shaken but not entirely convinced. "Possibly," I said, "you'd like a few more at this very low price." I went down the rack, picking half a dozen at random and duplicating them. "If you find any that don't suit you, just mail them back, we'll give you full credit. Now, perhaps, a nice synthetic pseudo-marten jacket, a beautiful syntho-silk bag, all at the same phenomenal discount, absolutely no down-payment, you do not owe us one red cent until the first of next month."

The saleswoman was standing there helplessly, her mouth open. "I'll bill it," I told her shortly. "You start wrapping the merchandise." It made several nice bulky packages, very hard to manage while holding the duplicator too. "There you are, madam," I said, assisting her toward

the door, "and remember, this sale isn't just for today, every item Brown's sells can be duplicated for similar amazingly low prices, you need not even bring your own duplicator, we will have one on every counter for your convenience."

I brushed past Sam on the way. "Get those people with duplicators moving out of here," I said, "drag counters around, block off the aisles, get a guard at the other doors. No one allowed in the store with duplicators. Then get duplicators around to each department as fast as you can, grab anybody you need to help you."

I got back to George and found him holding the phone. "They're all on," he said.

"Thank you, George." I picked up the phone.

"I suppose you've all had the word on these duplicators," I said. "Is there anyone who hasn't?" No one spoke. "O.K., now here's what we've been doing down here on the first floor—" I outlined what had happened. "Up to now," I said, "it's all been emergency action, off the cuff. Let's see if we can't get things a little better organized, get ahead of it. Any suggestions?"

"On this credit deal," Markov said, "the way we're writing them up, most of these people are white card, a few pink. If there's much trade, we're going to be swamped up here trying to check accounts. How about that?"

"Give them all blue-card treatment for today," I said. "We can get back into the routine when things settle down." At Brown's, a blue card is just like cash, only quicker, no restrictions on credit. All the customer has to do is show the card, the salesperson gets the account number on the slip, and that's that.

"O.K., but is any one's credit any good, really, if we don't have money?"

"We haven't had money since 1933," I told him. "Those green paper slips you carry around in your billfold are just credit tokens, to simplify the bookkeeping. Am I right, Joslyn?"

"More or less," Joslyn in Accounting said. "Close enough for our purposes, anyway. Now, about that ninety-eight per cent mark-down you put on Ladies' Wear, it may work there; but how about other lines, especially under-a-dollar items. Can we sell a ten-cent article for two mills? And what about non-duplicable merchandise? You can't set a five hundred pound refrigerator on that pan." With the duplicator, of course, we didn't have to worry about original cost of duplicable items, that was nil. We still had overhead, though, and in modern retailing you don't operate on a fixed mark-up. Brown's had about a hundred thousand dollars worth of electronic calculating machinery to figure exact mark-up on each item, based on running inventory, actual departmental overhead, warehouse handling costs, amortization of fixtures, a dozen other factors.

"What about this," I said, "a sliding mark-off from ninety per cent on cheaper articles to ninety-nine per cent on big stuff, where duplicable. On the non-duplicable items, our price is straight ten per cent of the price tag. What we want to remember is, these items may not be duplicable today, but they will be tomorrow, just as soon as somebody builds a bigger duplicator, and we have to clear out stock. If we can end up today with just one sample of everything we sell on the floor, and the warehouses bone-empty; that will be just right. With the duplicator, that's all we need to stay in business."

I could almost hear the wheels whirring in Joslyn's head, they make exactly the same sound as an IBM comptometer. "I'll buy it," he said finally, "as a temporary measure to move the stuff, pending calculation. I suppose you do want me to throw out the old cards, start calculating new prices from scratch?"

"That's exactly what I want. Now, who's next?"

Toivo in Personnel, the man who does George's work while George is busy philosophizing, was. He wanted to know what the policy would be on employee discount on duplicators.

"No duplicator sales to employees," I told him. "Each employee will get one free, compliments of Brown's. 'Thou shalt not muzzle the ox—.' On the other hand, you don't have to keep the feed box unlocked for him, either. They'll get the duplicators as they go home tonight, and they won't be allowed to bring them back into the store."

After that, Sam had a question about the instruction tags on the duplicators—he was not a department head, of course, but I had got him in on the round-up because he was in charge on the firing line. "Hadn't we ought to paint over that warning, or something?" he asked, "It's not a very good selling point."

"Have you lost any sales on it yet?" I asked.

"Well, no," he said.

"I think you'd better let it stand, then. There could be a point of liability involved if we removed it. This way, it's up to the buyer, he's been warned."

I won't say we settled all the problems the duplicator posed in half an hour, but we made a good running start.

"All very fine," George said as I hung up and mopped my face with a cashmere cardigan from the counter, "but what are you going to do about the mobs?"

"Mobs? What mobs?"

"Mobs," George said firmly. You may not think that warning is important, but a lot of people do. They're worried about what's going to happen when the foundations are chipped away. So—let's get ours now, devil take the hindmost. I'm not just guessing about this, incidentally, I've been watching the TV while you were talking. Most of the trouble is still downtown, but it's

coming this way. What do you intend to do about it?'

There was not a lot I *could* do. It's not a subject you hear discussed at retail conventions, but mob action is one of those things anyone with large areas of plate glass fronting on a busy thoroughfare thinks about now and then—usually on those gloomy occasions when you wake up at three thirty in the morning and can't get back to sleep. In my own case, I had long ago decided on a basic principle: You can't fight it, so treat it like any other act of God, button up and ride with it. Luckily, we had stripped all the other departments to the bone to give a flying reserve on the first floor to handle contingencies. They were beginning to show up now, and I put them right to work.

"Clear out the windows," I said, "get it all out, don't leave even a necktie. How are those signs coming?" I had already put a crew to work on a collection of big signs and banners — "YOUR CREDIT IS GOOD AT BROWN'S"; "99% OFF — ALL ITEMS — UP TO 99% OFF"; "DUPLICATORS, $19.98, NO DOWN PAYMENT, YOUR CREDIT IS GOOD AT BROWN'S"; "GIGANTIC STOCK CLEARANCE, UP TO 99% OFF" —not very subtle, but the way I had it sized up, this was not a time for subtlety. We could whet down the rough edges later, the thing now was to keep moving.

"Get those signs in the windows," I said. "Fast. We don't want anything in there to catch a looter's eye, just the bargain-hunters."

Markov was down on the first floor now. I called him over. "What's the absolute minimum for one of your girls to make up a contract and fill out a credit card?" I asked him.

"Those girls on the duplicators have got it down to about two minutes, now," he said.

"Not good enough. From now on, I don't want a person coming in this store without a credit card. There'll be a lot coming, and they won't be in a mood to stand in line. If you have to, just get their names and addresses and a signature. What we want to do, is slow them up just a little as they come in the entrance, without building up too much pressure. That way, the wilder ones can zip by up the street while we bleed off the slower-moving element, where our customers will be. Can you do it?"

Markov looked thoughtful. "I think so. We'll block off the entrances back about ten feet. That will leave a nice little wad of about fifty or so to slow things down. We'll move them on in through four aisles with two girls writing contracts at each aisle. Just getting minimum credit information like you say, I think we can move about eight hundred per hour per entrance."

"Sounds good," I said. "Get moving on it."

I got the floor supervisors together next and told them what we expected. "When the rush comes," I told them, "just get their credit card

number and get the merchandise on a slip. Move everything you can, but don't waste time and don't get in any arguments. If any one gets balky, load him down with merchandise and shove him out. If we let these people get out of hand once, we've had it."

"If it's going to be that bad, Mr. Thomas," Sansom from the Bootery said, "why don't we just lock up for today?"

"For two reasons: First, if we just lock up and go home, they can still break the locks, and we've got no one here to control things. The second reason is, we're not here just for fun, we're here to sell goods."

"Now, are there any other questions?"

There were several about technical aspects of handling the crowds, and we settled them in a hurry, because things were getting ready to pop. There was a commotion outside, and a dozen or so men jammed in the south entrance all at once. They stood there for a moment and looked uncertainly around. Before they had a chance to get their bearings, Markov was hustling them over to his account clerks. A good man, Markov, he was really out of place in Credit, he should have been on the floor.

Two of the customers had duplicators, and they were not about to check them. I saw my "no duplicator" rule was not going to work, today. "Forget it," I told the clerks. "Just try to keep track of the merchandise and get on a slip."

By the time Markov had the first group checked through and turned loose with their bright new credit cards in their hands, every entrance was plugged. Luckily for us, the jewelry store two doors down hadn't got the word in time, or perhaps they just did not think fast enough. The more aggressive went past our windows full of sale signs, their eyes on the jewelry and knicknacks, and the meeker were crowded off into Brown's. In any group like this, there is always a small percentage of actively antisocial individuals and a large number who are just there, with no very sharp understanding of why. After the first few minutes of excitement, most of these latter are wishing they were home. While Brown's was not exactly home, it was comparatively homey. We got a few hoodlums, but they were watered down to where we could handle them. The rest were just people, a little more worked up than usual, but still customers.

I won't say we didn't have excitement, because we did. Any time you get three or four thousand people milling around in a store, you are going to have excitement.

Brown's has a liquor department, on the fourth floor, where it is not conspicuous. What we want is the case-lot trade, not the after-closing half-pint customer. In spite of this, a few of the rowdier element did find their way to it. I got a trouble call a little after one.

A red-headed fellow was back of the counter, tossing bottles to the

crowd. "Here y'are, Mac," he said as I pushed up to the counter. "Have one on Brown's, good old Brown's." He shoved a bottle of Black Label at me.

"Right," I said. I smashed the neck off on the counter edge. "Cheers," I said, and tipped it up.

The redhead stared at me. "Careful, bud," he said. "You'll cut your tongue, I did once, trying that."

"The way to do it," I explained, "you hold your hand tight around the neck and let the whiskey run over your thumb." I showed him. "Here, you have one." I grabbed another bottle, smashed the neck off, and handed it to him. He tried it, gingerly.

"No, not like that," I said impatiently, "just shove your lip against your thumb, tip 'er up, let 'er go down. Like this." The nice thing about this is, by careful manipulation of your thumb you can seem to be taking a hefty swig, though actually drinking very little. I learned how in my younger days, while temporarily employed by the government in the retail blood-and-guts trade, through carefully observing my platoon sergeant. He had a reputation as a rough fast drinker, but always ended the evening on his own feet.

"This stuff is no good, anyway," I said. "These square bottles don't give you a grip. Hand me a couple of those Lemon Hart." I broke the necks and gave him one. "Mud in your eye." A hand reached past me for the bottle I had set down. I chopped at it and the man behind me yelped. "Buy your own whiskey," I said coldly. "Here, you," I told one of the clerks, "this man wants a bottle of Scotch. Get on the ball, start serving the customers."

Redhead already had a pretty good glow on when I got there, and Lemon Hart is 151 proof. By the time he had mastered the trick of drinking out of a broken bottle, I judged he was not in shape to bother us any more. "Get his credit card and bill him for two Black Label Scotch, two Lemon Hart rum, plus whatever else he handed out," I said. "Then have the store police tuck him away."

These things are not hard to handle, if you move in fast and keep jabbing. The basic principle is: Never react as the other fellow expects you to, let him worry about what you are going to do, rather than vice versa. And, of course, keep your eye on the objective, which in our case is to sell merchandise. It's surprising how few salespeople nowadays can seem to get that through their heads. They let the customer take the initiative. Once you do that, you are licked. You are not selling then, you are *buying*, regardless of which way the money goes.

I had occasion to think about this several times that afternoon. The young people we had on the floor could go through the motions, but they weren't really *selling*. I got another S O S, for example, from Sporting Goods.

"This gentleman wants to buy a

pistol, but he doesn't have a permit," the salesman said nervously. A tall, cadaverous individual was standing by the counter.

"Here's my permit," the man grated. He turned toward me. I found myself looking into the muzzle of a .30 Luger. "Now I want bullets, and quick."

"I see," I said. I noticed the safety was on. I glanced at the counter. There was no open box of ammunition. We do not, of course, keep loaded pistols in stock. "Just what do you wish to use the pistol for, sir," I asked him. "Target, sport, or . . . uh . . . defense?"

"To shoot people with," the man said grimly. "From now on, there is no law, it's survival of the fittest. I intend to survive."

"In that case," I said, "might I suggest a somewhat more advanced weapon? Son, reach me one of those Stens from up over the rack, please."

"No false moves!" the man warned harshly. "I have you both covered!"

"Right," I agreed. "No false moves. There you are, sir, a genuine Sten, the submachine gun favored by British commandoes in World War II. One of the most reliable and fastest firing hand weapons ever designed." I worked the action a few times and showed him how to release and insert the magazine. As I did so, I smeared the price tag with my thumb. "Only $179.50, sir," I said, "complete with two fully loaded magazines, guaranteed to comply with pertinent provisions of the Federal Firearms Act." He picked it up eagerly, his eyes shining like a four-year-old who has just seen Wyatt Earp's Ned Buntline Special hanging on the Christmas tree.

"Now," I said, "if I could have your credit card, please, while the clerk gets your ammunition—get out a dozen boxes of that .38 Short back on the lower righthand shelf, please, the stuff in the green boxes with the white trademark." I got the account number and began writing up the sale. "You'll need something to carry the ammunition and other gear, of course. How about one of our new Everest Assault Paks, crafted after those used by Tenzing Norkay and Sir Edward Hillary in the conquest of Everest? And a holster for the pistol, we have a beautiful item here by Lawrence, specially designed for quick draw from any position—"

"Wasn't that just a little, uh, unethical?" the clerk asked as we watched the man swagger out, his Everest Assault Pak dragging heavily at his narrow shoulders, the hand-tooled Lawrence holster bulking on his hip, the Sten under his arm.

"Under ordinary circumstances," I admitted, "yes. Today, no. We're required by law to disable those Stens, but we're not required to tell the customer just what we did to them, he's supposed to know the law himself. If we had given that fellow a gun that would shoot, or ammo to fit that pistol, he'd be dead in half an hour, and he might hurt someone else, too. This way, he'll be picked up in ten minutes, no dam-

age done, no one hurt, I don't think we'll even be gigged on selling that pistol without a permit. If we are, we've got a hundred and sixty extra on the Sten to help pay the fine, that's our fee for taking the chance.

"Now, one more thing. When things settle down again, remind me to give you a few pointers on tie-in sales and knowing your merchandise, not to mention showing initiative in dealing with customers. Jobs may be hard to get, son, when this duplicator really starts working."

Well, the boy could take a hint, you have to give him that. For the rest of the day there was a pretty steady stream of people leaving Sporting Goods with Stens under their arms and Everest Assault Paks on their backs. I had to send three more people over to help him, and when I checked a little later he had moved all the old ammunition, some of it dating back to the time I had been in Sporting Goods myself—not at any ninety-nine per cent discount, either. On guns and ammunition we were sticking to straight list, except for the one thousand per cent mark-up on the Stens, which he had kept.

It didn't make any difference to the customers. They were people who took seriously that business about foundation chipping, and they were all convinced Times Square would be a jungle tomorrow — professorial types mostly, like the fellow with the Luger. I have noticed before that people who have the most faith in

the efficacy of shooting other people often seem to be those who have not tried it often.

Finally, about ten in the evening, the National Guard moved in, and we were able to close up.

By that time, the first shock was over, people were getting used to the duplicator. Their eyes no longer popped when the duplicate appeared out of thin air, easy terms and low prices were not such a novelty any more, they were beginning to pick and choose.

No one had been able to figure out how the duplicating effect was generated, but the engineers had found it was transmitted to the pans over a simple metallic circuit. With that much known, larger duplicators were obviously feasible. As soon as we were sure of this, we had got out wires to our suppliers canceling all current orders—tough on them, no doubt, but we weren't in business for our health.

Back in the receiving warehouse, our building maintenance crew had already got a big duplicator working, just the works from a small one coupled to two big aluminum sheets. They were making TV sets when I went back to check after closing the store—for some reason there had been a big run on TVs, you would think every one already had one, but apparently not. One man was pushing the button and two more were picking them off with fork-lifts and running them over to a stack against the wall.

It seemed to me they were getting a little too enthusiastic about it. I wanted some inventory on heavy stuff, just enough so we didn't have to run our model back and make one every time we sold a stove or daveno, the small articles we could make right at the counter as we sold them; but until things settled down I didn't want a big stock.

"O.K., boys," I told them. "You can close up now and go home. There's a pile of duplicators by the door, take one as you go out. Take a couple for the kids, too, if you'd like." I had decided to drop the one-to-a-customer rule. We had sold over two thousand that day at twenty dollars, another twelve or fifteen hundred at prices down to five dollars, but toward the end of the day we couldn't keep them moving even at a dollar fifty. Tomorrow, they'd be breakfast food prizes.

I went back up front. The store was a mess, but the counters and shelves all had a lovely bare look and the stock runners were still hauling bale after bale of contracts over to the elevators. I felt pretty good about it.

We had turned the coffee shop over to the military for a command post, I was still not entirely easy about vandalism. George was there, sitting at the coffee-smeared counter with a second lieutenant. Walkie-talkies, field rations, and miscellaneous gear were piled on the tables. A sergeant was reading comic books from the rack by the door and a couple of Guardsmen were sleeping

in booths. It looked very homey and quiet.

"Ah," George said, "the man with the ball-point pen, bowed by the weight of 3¼% he stands, say what immortal hand or eye, framed thy fearful symmetry. Sit down, John, have a cup of coffee. Lieutenant Simond, Mr. Thomas. You and the lieutenant should get along, John, he's another merchant prince, from the supermarket in the next block."

Simond blushed, a nice-looking crew-cut young fellow. George is a little disconcerting, when you don't know him well, and he seemed rather above himself tonight. In fact, for a man who had put in a big day—even George had been working toward the last—he seemed somewhat *too* jovial. I looked at him closely.

"That's right, John," he said cheerfully. "At the end of the day's occupation, when the world looks rancid and sour, comes that pause for a soothing libation, which is known as the 'cocktail hour.'" He pulled a bottle from his pocket. "Here, put some of this in your coffee, you'll feel better."

"Thank you, George," I said. The bottle in the bottom file drawer is not a custom at Brown's, I don't believe in drinking in the store and George knows it; but there is a time and place for making an issue of rules, and there is a time and place for not doing so.

George lifted his cup. "To Western Civilization," he said, "drowned by the mill that ground out salt. *Skoal!*"

"Oh, now—" I said.

"Oh, now, yourself, John. Let's not kid ourselves, just because it takes a day or two for the machinery to fall apart. You've kept on top so far by moving fast and taking advantage of the mob's stupidity. The fact still remains, this machine makes every man self-sufficient, it takes the stick-um right out of society. Pretty soon, people are going to get wise to that. Who's going to buy your gadgets then, who's going to buy beans from Lieutenant Simond here when they can drop a jar of caviar on the pan and, presto—" he made a motion of jabbing a button.

"Well, let's wait and see," I said. "It may not be quite so bad as you think."

"It's *worse* than I think," George said stubbornly.

I shrugged and sipped at my coffee. I didn't believe it, there have always been merchants, ever since the stone age, come war, revolution, or cataclysm, people have bought and sold. Still, it's hard to argue with logic.

Simond cleared his throat. "Not to change the subject," he said, "but about that bean business Mr. Beedle mentioned—" He paused diffidently.

"Yes?" I said. As far as I was concerned, a new subject was welcome. The comfortable satisfaction I had felt when I sat down was all gone. George often does that to me. "What about beans?"

"Well, I've been thinking about it, he's right; you know, not very

many people *will* buy beans and chuck roast, when they can eat wild rice and smoked pheasant breast. So, you know what I've been thinking? I think what we'll have to have, instead of a supermarket, is a sort of super-delicatessen. Just one item each of every fancy food from all over the world, thousands and thousands, all different—"

"It won't work," George said with weary kindness. "That's what I've just been explaining to John here. Why should I buy my pickled hummingbird tongues from you, when I can keep a can on my own shelf and duplicate it ad nauseam?"

"Ad nauseam, that's why," Simond said earnestly. "Beans, you can eat every day. Pickled hummingbird tongues, you can't. You know, when we first started selling these frozen TV dinners, we ran into something funny. The first couple of weeks, they'd go like crazy. Then they'd die. We'd change suppliers, same story. Hot, then cold. Finally, somebody got an idea. You take the Mexican dinner, that's a good seller, I like it myself. You taste the first one, it's delicious. The next, not quite so good. The third or fourth one, eating's a chore, and by the tenth you can't stand the sight of even the wrapper—"

"C rations," I put in.

"That's it, same thing. The trouble is, each one is as exactly like the other as they can be made. You eat one, you've had them all. So, we passed the word to our supplier. Now, he changes the formula every week, a little more pepper, a few less beans, a different cut of meat, so forth. People think they are getting the same thing, but it's just enough different to keep them coming back for more."

"I see what you mean," I said thoughtfully. "In the past, we've sold standardization because it was a scarce commodity. Now, the shoe is on the other foot, we'll sell diversity. Instead of offering the customer a choice of GE or Westinghouse refrigerator, we'll offer a choice of any refrigerator built, anywhere—" a sudden thought struck me. "Damn it," I said unhappily. "We *still* can't get away from our suppliers."

"Not only that," George offered helpfully. "Those samples you're going to offer a choice of are practically all going to be hand-made models, remember that. Also, you're not going to get away with duplicating them for nothing. I think you already broke the law when you duplicated the trademarks on those cartons. Even if you didn't, it's not going to take much extension of present legislation to make it illegal to copy any manufactured article without paying royalty."

How right he was. I was way ahead of him. The whole picture was beginning to firm up in my mind now, and I was not very happy at what I thought I saw.

I looked at my watch. "Turn on that TV, please, George," I said. "It's time for the late news."

". . . And that's the situation with

regard to the duplicator, the biggest news in the world today," the announcer said. "Now, for a quick run-down of expert opinion, how the duplicator will affect you and me in the days ahead. First, to Detroit, Mr. William Peterkin . . ."

". . . Mr. Peterkin, what, in your opinion, will be the single most noticeable effect of the duplicator on the auto industry?"

Mr. Peterkin looked bloodshot and haggard, it was obvious that he had put in a busy day, too.

"Well, I should say elimination of our dependence on expensive tooling and assembly lines. We have a lot of things on the drawing boards —fuel injection, interesting ideas in body design, electronic shifting, even a sort of, you might say, 'electronic chauffeur,' to remember previously traveled routes and drive them for you—all sorts of things that haven't been put on the market because of production difficulties. Now, well, all I can say is, watch the news for the next few months. Suddenly it's going to be, not 1960, but about 2160."

"How about employment, Mr. Peterkin? A lot of people have been worrying about their jobs. How does that look in your industry?"

"That's kind of a funny thing. You know, when we first got the word about this thing, this duplicator, we immediately started thinking in terms of pretty drastic retrenchment. Then, when we got down to cases and started figuring what to cut, where; it turned out we didn't have much fat to spare. Engineers, draftsmen, designers; we need about six times as many as we have. Nut-twirlers and button-pushers on assembly lines will go; but mechanics, craftsmen who can take a blueprint and turn out a piece to specified tolerance . . . well, we can't get them from other industries, they're in the same boat, so it looks like we'll go into a big training program immediately, coupled with a heavy recruiting drive—"

"Great," I said. "There goes our help, just like wartime. We can't compete when they're offering Rosie the Salesgirl four bucks an hour to be Rosie the Riveter."

". . . And now," the announcer said, "Washington, the Department of Commerce—"

". . . The outlook for all forms of surface transport, and certain categories of air transport, is fluid. It has not yet been determined if the duplication effect can be extended over metallic or wireless circuits for any distance. Should remote duplication prove feasible, rolling stock and roadbeds, trucks and barges, will become obsolete. Increases forecast in total tonnages moved, however, may require marked expansion of terminal facilities—"

". . . Wall Street—"

". . . After a heavy selling wave, industrials and utilities recovered surprisingly by closing time—"

". . . Treasury's abrupt withdrawal of all legal tender. While the duplicator can help to ease the tremendous task of expanding and modernizing

banking's physical plant, there simply are not enough people—"

"You get the picture?" I said. "The same old rat race, only twice as furious. We've been running like mad all day, just to get back to where we were."

George shook his head slowly. "You're wrong, John. Not back to where we were. This morning, we had an economy of scarcity. Tonight, we have an economy of abundance. This morning, we had a money economy—it *was* a money economy, even if credit was important. Tonight, it's a credit economy, one hundred per cent. This morning, you and the lieutenant were selling standardization. Tonight, it's diversity.

"The whole framework of our society is flipped upside-down." He frowned uncertainly. "And yet, you're right too, it doesn't seem to make much difference, it *is* still the same old rat race. I don't understand it."

"Well, maybe the framework is just not so important as you thought, George," I said. "Anyway, *you* puzzle about it. I haven't got time, right now. Tomorrow's going to be a busy day, and probably the next several after it." I finished my coffee and stood up. "If you fellows will excuse me, I'm going home to bed."

And that was the first day of the duplicator, the day that set the pattern.

THE END

THE ANALYTICAL LABORATORY

(*Continued from page* 77)

And, of course, I naturally pay attention also. I'm in the position of trying to guess, now, how you, the readers, are going to react to stories six months or so hence. The stories I read the day you read this will not wend their way through the laborious and devious channels of typesetting, make-up, printing, and distribution in much less than six months. Working at that six-month-lapse guessing-game makes me decidedly want comments!

Here's the score on the April, 1958 issue:

PLACE	STORY	AUTHOR	POINTS
1.	Basic Right	Eric Frank Russell	1.46
2.	Revolt	Christopher Anvil	2.38
3.	The Man Who Counts (Conclusion)	Poul Anderson	2.76
4.	A Pair of Glasses	Jon Stopa	3.38

THE EDITOR.

CLOSE TO CRITICAL

BY

HAL CLEMENT

Conclusion. Some problems are inherently of such a nature that cooperation must be accepted, willy-nilly, because neither individual—or group—can do it alone. It may be rescuing a spaceship...or even something seemingly simple, like just talking....

Illustrated by van Dongen

SYNOPSIS

The planet Tenebra, *circling the star Altair some sixteen light-years from the Solar system, has presented a major research problem. Its diameter and surface gravity are approximately three times those of Earth. Its temperature in the equatorial regions runs between three hundred seventy and three hundred eighty degrees Centigrade. Since its escape velocity permitted it to retain originally an amount of water per square mile about equal to that of Earth, the surface atmospheric pressure is about eight hundred times Earth normal. The atmosphere consists principally of water, laced with the biological by-products nitrogen, free oxygen, and, in this rather unusual case, oxides of sulfur. It is an even more corrosive environment than that of Earth; in spite of the general acidity, the silicate surface rocks of the planet dissolve so rapidly that the crust is in a constant state of isostatic imbalance, and earthquakes are practically continuous.*

After much engineering effort, a remote-controlled robot is designed and built capable of operating on Tenebra, and is successfully lowered to the surface. It explores for months, and finally achieves its intended purpose of locating a more or less intelligent indigenous race. The creatures appear to be in a stone-age culture, though only brief observations of them are made at first; when they are found to be egg-layers, the operators of the robot steal ten of their eggs, carry them to an isolated and uninhabited area, hatch them, and bring up the young creatures with the plan of educating them as go-betweens in the planned human-Tenebran activities of the future.

The story actually opens as this project is about to get under way. The kidnaped natives have been educated for some sixteen years, and are presumed ready for work, though judging by their size they are not yet adult. They do not know their own background, but regard themselves as "Fagin's people," some humorist among the human operators having taught them to call the robot FAGIN. *A vessel patterned after the ancient bathyscaphe is practically completed, ready to carry human explorers in person to Tenebra's surface. Two political officers have come to the* Vindemiatrix, *the robot's "mother ship," to watch the start of the contact operation.*

These officers are Councilor RICH, *a human being, and Councilor* AMINADABARLEE, *a native of Dromm in the Eta Cassiopeia system. Both have brought members of their families, regarding the trip as little more than a routine affair, to be combined with a vacation if possible. The families are* ELISE—"EASY" *Rich, twelve-year-old daughter of the human officer, and* AMINADOR-NELDO, *son of the Drommian. The latter is physically as large as his father, but is actually about the equivalent of a human seven-year-old.*

On the planet's surface, one of the students has been sent out exploring, deliberately, in a direction likely to bring him into contact with his parent tribe. The student, NICK CHOPPER, *does find the cave dwellers, learns their language after a fashion, and both shows and tells them some of the things he has learned from his teacher "back home"—the use of fire, the keeping of domestic animals, and such items. The leader of the cave tribe,* SWIFT, *has his cupidity aroused, and orders Nick to bring Fagin to the cave village. Nick agrees to do this provided the teacher agrees; Swift, a complete autocrat, takes violent exception to the condition mentioned and starts uttering threats. Nick becomes afraid for the safety of his fellows, and takes the unprecedented step of escaping from the cave village by night.*

At night—Tenebra's rotation period is nearly a hundred hours—enough heat is radiated from the upper layers of the atmosphere to allow it to shift into the liquid phase. This liquid water is enough denser than the still gaseous oxygen for separation to occur, and eventually huge raindrops reach the surface which contain only the truly dissolved oxygen. This is insufficient for active animals, and most Tenebran animal life collapses into more or less suspended animation when struck by one of the "clear" drops which fall after the first few hours of night. Nick is no exception to this rule; but he finds that by carrying torches he can see to avoid the drops and remain in breathable air. He starts his journey, failing to realize that Swift would cheerfully have let him escape even by daylight so that the cave dwellers could follow him back to Fagin's village. Nick reaches home and reports to his teacher. The human beings realize the situation, but before they can form any plan of action Swift and his people attack. HELVEN RAEKER, *the ecologist in charge of surface activities, watches helplessly while two of his pupils are killed and the village captured. Swift, in spite of the language problem, makes his wishes known to the robot operators; the machine has to go back to the cave village with him, or Swift will use fire on it. Since the destruction of the robot would wreck the entire project—even if another were built, it would take years to locate this particular area again on huge, unmapped, practically featureless Tenebra—the human beings have no choice.*

Nick and the other survivors, contemptuously left behind, move their herd and personal belongings away from the village. They plan to rescue Fagin, and want a base of operations unknown to the cave dwellers. They find a site on a peninsula projecting into a sea to the east of the old village, and set up a camp; unfortunately, no one stops to think what may happen to the sea level at night.

On the Vindemiatrix *the two children have been taken on a sightseeing tour by a crewman. This trip*

includes a visit to the practically completed bathyscaphe, orbiting just above Tenebra's atmosphere. Failing to realize that Aminadorneldo is not an adult, the guide allows them to enter the ship unattended, and remains in the shuttle rocket which brought them from the Vindemiatrix. *Raeker, Rich, and Aminadabarlee discover this during a radio conversation with the man; the Drommian becomes virtually hysterical as he points out the "stupid error," and his anxiety is transmitted too well.*

In his haste to get back to the children, the crewman makes the error of touching the bathyscaphe's hull while still in contact with that of the tender; the potential difference is enough to set up a sneak-circuit which fires a set of the bathyscaphe's booster rockets—outboard attachments designed to get the ship into an entry orbit when the time came. The crewman is kicked onto one indeterminable vector and lost; the ship onto another.

Easy is able to report on the 'scaphe's radio, but before another shuttle can be readied and taken across the hundred and sixty thousand miles between Vindemiatrix *and planet, her ship has entered atmosphere and is no longer interceptible. The elder Drommian can hardly find words to express his opinion of human stupidity; Raeker points out that the ship was made for just such a trip, is perfectly capable of getting down to atmospheric speed under automatic control, and once down has electrolysis apparatus able to get hydrogen from Tenebra's atmosphere to fill its buoyancy cells and get back to where rockets will work and an interception be managed. The politicians do feel better for a while, after the ship succeeds in landing after a rough descent. Its automatic pilot, energized by Easy on careful instructions from the* Vindemiatrix's *engineers, has brought it down somewhere near the robot, though no one can tell just how near.*

At first no one cares, since it is presumed that the ship can take off again unaided; but when the girl, under the engineers' directions, closes the switches of the electrolyzers, they draw no current.

Nick and his friends are overwhelmed by the rising sea during their first night at the new camp, and collapse into the usual torpor of Tenebran animal life; during the night, some unknown creatures in the sea devour some of the herd, though they leave the pupils unharmed. Getting an idea from this, Nick leaves orders with his friends to move the camp to a safer place while he himself goes to rescue Fagin. His plan is to decoy the cave dwellers into pursuing the robot into the sea, where they will be anaesthetized. Nick knows that the robot does not have the normal need for oxygen and can escape from such a situation. His plan is partly successful; he gets the robot away and covers their trail by setting a wide brush fire, but the pursuers recover the track too soon and the fugitives are forced to escape them by crossing a river—the robot

carrying Nick's unconscious form across the bottom of the stream. The robot is free, but unfortunately so are the cave dwellers.

On the Vindemiatrix, *it is assumed that one or more open inspection ports of the bathyscaphe have allowed Tenebran atmosphere to damage some of the electrolysis wiring. Raeker can see no alternative to having his pupils find the downed vessel and teach them to make the repairs. This looks feasible enough, though after a few days Easy reports that the 'scaphe is no longer floating motionless on a lake; it seems, during the night, to be drifting downstream. Aminadabarlee is alternately blowing hot and cold—usually cold. Rich is being forced to use all his diplomatic ability to keep the creature from persuading his fellows to abandon all contact with the "uncivilized, heartless, careless," human beings; interstellar trade being what it is, such a breach could be as disastrous as a full-scale war. Raeker, irritated by the Drommian's words and manner, reacts in a way which does not make Rich's task any easier. It begins to appear that more than the lives of the children may depend on a successful rescue.*

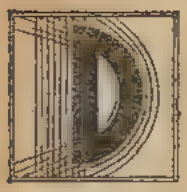
Nick and the robot get back to their fellows. While the situation is being discussed, the group is found by a scout of Swift's; but they see and capture the scout. Raeker, working through the robot, tries to get back to the original plan of working with Tenebra's natives; he gives the scout a message for Swift telling of the grounded bathyscaphe, the need for finding it, and the advantages accruing to Swift and his people if it is saved. He also tells of the drifting of the machine the preceding night—and incidentally, gives his pupils a better idea of the whole situation than they have gleaned in sixteen years. The scout agrees to deliver the message, and leaves. Raeker, not fully trusting Swift, immediately organizes his people for a search independent of Swift; Aminadabarlee, discovering for the first time that the human beings are depending on the "ignorant savages" of Tenebra to rescue his son, goes into another tantrum, from which he is brought with difficulty by Raeker, Easy, and his own son. Raeker's plan is put into operation in spite of the Drommian; three pairs of students go out searching, leaving Nick and a companion to watch the camp and wait for Swift's answer, if any.

The children spend the time describing the animal life around the once more stranded bathyscaphe.

Two of the exploring teams spot a light which they suppose may be the downed ship, but when they reach it they find an active volcano—something wholly outside their education and experience. They camp near it, planning to search their assigned areas before reporting this new development to Fagin; they attach little importance to the peculiar behavior of the rain and the unheard-of hurricane of fully two knots which they are experiencing near the mountain.

PART 3

IX



ADDY! Dr. Raeker! 'Mina's right; it's Nick!" Easy's voice was close to hysteria. The men glanced at each other, worried frowns on their faces. Rich gestured that Raeker should do the answering, but his expression pleaded eloquently for care. Raeker nodded, and closed his own microphone switch.

"Are you sure it's actually Nick, Easy?" he asked in as matter-of-fact a voice as he could manage. "He's supposed to have stayed at the camp, you know. There are six others actually searching, supposedly in pairs; do you see two of them, there?"

"No," replied Easy in a much calmer voice. Her father sank back in his chair with a thankful expression on his face. "There was only one, and I saw him just for a second. Wait—there he is again." Raeker wished he could see the girl's face, but she was shouting her messages from one of the observing chambers and was well out of pickup range of the vision transmitter. "I can still see only one of them, and he's mostly hidden in the bushes—just his head and shoulders, if you can call them that, sticking up. He's coming closer now. He must see the 'scaphe, though I can't tell where he's looking, or what he's looking with. I'm not sure whether he's the same size, but he certainly is the same shape. I don't see how you'd ever tell them apart."

"It isn't easy," replied Raeker. "After a few years, you find there are differences in their scale and spine arrangements something like the differences in human faces. Maybe you can tell me what this one is wearing and carrying; that should be a lot easier to describe."

"All right. He has a sort of haversack slung over what would be his right hip if he had any hips; it's held by a strap running up around the other side of his body, over the arms on the left. The front of the sack has a knife hanging from it, and I think there's another on a sort of complex strap arrangement on the other side, but he's been working toward us at an angle and we haven't had a good look at that side. He's carrying four spears that look just like the ones Nick and his people had, and the more I see of him the more he looks like them."

"Does he have an ax, or anything looking like one?" asked Raeker.

"If he has, it's hanging from his straps at the left rear, where we can't see it."

"Then I'm afraid you're going to have to make good on your claim that you can get on all right with Swift's people. Mine carry only two spears, and the search teams took their axes with them. If that were one of our searchers, he'd have an ax in one of his left hands, almost certainly. That means we'll have to change our plans a bit; we were hoping our folks would find you first. That's just luck; I suppose this is some hunter of

Swift's. They'd hardly have had time to get an organized search going, even if he decided to run one on his own."

"Isn't it going to be a long time before any of your search teams get back to the camp?" asked Easy after some seconds of thought.

"I'm afraid so; over a week of our time. Swift's answer should be back to Nick before then, though."

"I wish the time didn't stretch out so on this darned four-days-for-one world. Didn't I hear you say you'd learned a little of Swift's language during the time he had the robot at his caves?"

"We did. Not very much, though; it's extremely hard for a human being to pronounce. We recorded a lot of it; we can give you the sounds, and as much as we could get of the meaning, if you think it will be any help. It'll help time to pass anyway."

Easy's face appeared in the screen, wearing an impish expression.

"I'm sure it will be very helpful. Won't it, Daddy?" Even Rich was grinning.

"It will, Daughter. She'll learn any language she can pronounce nearly as fast as you can give it to her, doctor."

"Really? I've never heard her talk anything but English to her young friend there."

"What human being can pronounce Drommian? She understands it as well as I do, though."

"Well, I wouldn't bet very much that she could pronounce Tenebran, either. It's got some sort of pitch-inflected grammar, and a lot of the pitch is above human vocal range. Of course, she's young and female, but I'll bet she confines herself to understanding."

"You may be right. Hadn't we better get back to the matter in hand? What's that native doing now, Daughter?"

"He's walking around, thirty or forty yards from the 'scaphe, looking it over, I suppose. If he's seen us through the ports he hasn't shown any sign of it. He's still alone . . . I guess you're right, Dr. Raeker; I remember you sent your people out in pairs, and if anything had happened to one of a pair the other would surely report back to camp before going on with the search."

"I'm not sure you're right there, but I *am* certain it's one of Swift's people," replied Raeker. "Tell us when and if he does anything new."

"He is now. He's going out of sight the way he came. He definitely doesn't carry an ax; we've seen all sides of him now. He's getting hard to see; there's less of him visible above the bushes; and he's getting out of range of our lights. Now he's gone."

Raeker glanced at a clock, and did some rapid mental arithmetic. "It's about four hours to rainfall. Easy, you didn't say whether he was carrying a lighted torch, or fire in any form?"

"He definitely wasn't. He could have had matches, or flint and steel, or some such fire-making apparatus in his pouch, of course."

"Swift's people don't know about them. Nick's group makes fire by friction, with a bow-drill, but I'm sure the others haven't learned the trick yet. They certainly hadn't yesterday—that is, three or four ship's days ago. Anyway, the point I'm trying to get at is that if the one you saw had no fire, he was presumably within about four hours march, or not too much more, of Swift's main group; and they'd almost have to be either at their caves or near the line between those caves and the point where Nick and the robot took to the river last night. He may be even closer, of course; you'd better keep your eyes open, and let us know immediately if the main body shows up. That would give us a still closer estimate."

"I understand. We'll look out for them," replied Easy. "While we're watching, how about getting out those language tapes you have? The sooner we start listening to them, the more good they'll probably do us."

Raeker agreed to this, and the next few hours passed without any particular incident. Nightfall, and then rainfall, arrived without any further sign of natives; and when the drops grew clear the children stopped expecting them. They ate, and slept, and spent most of their waking hours trying to absorb what little Raeker had gleaned of Swift's language. Easy did very well at this, though she was not quite the marvel her father had claimed.

A complication which no one had foreseen, though they certainly should have, manifested itself later in the evening. The bathyscaphe began to move again, as the river formed around it and increased in depth. The children were quite unable even to guess at the rate of motion, though they could see plants and other bits of landscape moving by in the glare of their lights; the speed was far too irregular. Even if they could have reported anything more precise than "sometimes a fast walk, sometimes a creep, and sometimes not at all," they were not even sure when the motion had started. They had had their attention drawn to it by an unusually hard bump, and when they had looked outside the few features visible were already unfamiliar. They might have been drifting a minute or half an hour.

Raeker took some comfort from the event, though Easy had been slightly disposed to tears at first.

"This gives us one more chance of getting our own people to you ahead of Swift's," he pointed out. "The cave men will have the job of hunting for you all over again, while we are getting you more closely located all the time."

"How is that?" asked Easy in a rather unsteady voice. "You didn't know where we were before we started moving, we don't know which way we're moving, how fast, or when we started. I'd say we know less than we did last night, except you can't know less than nothing."

"We don't *know*," granted Raeker, "but we can make a pretty intelligent

guess. We judged that you were within a few hours' walk—say twenty-five or thirty miles—of the line between Swift's caves and our people's camp. We are about as sure as we can be without having actually mapped the entire area that this region is in the watershed of the ocean Nick's people found. Therefore, you are being carried toward that sea, and I'll be greatly surprised if you don't wind up floating on it, if not tonight at least in the next night or two. That means that Nick will only have to search along the coast on land if you don't reach the ocean tonight, or look offshore for lights if you do. I shouldn't think you'd go far out to sea; the river will lose its push very quickly after getting there, and there's no wind to speak of on Tenebra."

Easy had brightened visibly as he spoke. Aminadorneldo, also visible on the screen, had not made any change of expression detectable to the human watchers, but the girl had cast a glance or two his way and seemed to be satisfied with the effect of Raeker's words on him. Then a thought seemed to strike her, and she asked a rather pointed question.

"If we do get carried out on the sea, what do Nick's people or anyone else do about it?" she asked. "We'll be out of his reach, and out of Swift's reach, and you say there aren't any winds on this planet, though I don't see why."

"The pressure's so high that the atmosphere doesn't even come close to obeying the classical gas laws," replied Raeker—he was no physicist, but had had to answer the question quite a few times in the last decade and a half—"and the small percentage changes in temperature that do occur result in even smaller changes in volume, and therefore in density, and therefore in pressure. Little pressure difference means little wind. Even changing phase, from gas to liquid, makes so little change in density that the big raindrops just drift down like bubbles, in spite of the gravity."

"Thanks, I'll remember to make sense of that when I get back to school," said Easy. "You're probably right, but you haven't answered my question about how Nick was going to reach us if we went out to sea. Forgive me if I'm spoiling an attempt to change the subject."

Raeker laughed aloud, for the first time in some weeks.

"Good kid. No, I wasn't trying to change the subject; you just asked a question that every visitor for sixteen years has put to me, and I answer it without even thinking. You pushed a button. As far as your question goes, leave it to me. I'm going to talk to Nick first thing in the morning—he couldn't do anything right now."

"All right," said Easy. "If you're that sure, I won't worry. How will we be able to tell when we reach the sea?"

"You'll float, the way you did in the lake, at least when some of the water boils off in the morning. I shouldn't be surprised if you were carried off the bottom even at night

when the river reaches the sea, but I'm not certain of it. I don't know how completely or how far down the water dilutes the acid. Keep an eye on the landscape, and if you start to drift up from it let us know."

"All right. That'll be easy."

But they were still on the bottom when the 'scaphe stopped moving. The human beings at both ends of the communication line had slept in the meantime, but there were still some hours before local daylight was due. Something had slowed the current so that it was no longer able to push the big shell along, and Raeker suspected that the children had reached the ocean, but he admitted there was no way to be certain until day. The intervening time was used up with language work again; there was nothing else to do.

Then the ship began to rise gently off the bottom. The motion was so gradual that it was a minute or two before either of the youngsters was positive it was taking place, and more than three hours passed before the bottom could no longer be seen. Even then they had not reached the surface, or the surface had not reached them, depending on one's viewpoint. It was definitely day by this time, however, and Raeker had lost practically all his doubt about the ship's location. The river had dried up much more quickly, the day before. He told Easy what he was going to do, suggested that she listen in, and called Nick.

There was no immediate answer, and a glance around the screens showed that both Nick and Betsey were with the herd, half a mile away. He sent the robot rolling toward them, meanwhile repeating his call in more penetrating tones. Both herders waved spears in token of understanding, and Nick began to trot toward the approaching machine. Raeker kept it coming, since he saw part of what he wanted at the foot of the hill.

Nick met him just before he reached it, and asked what had happened.

"I'll tell you in a few moments, Nick," he replied. "Could you go to the wagon and get a bucket, and then meet me at the pool down here?"

"Sure." Nick loped back up the hill. Raeker had not had the robot bring the bucket because of a long-established habit of not using the machine's moving parts, such as the handling equipment, more than could conveniently be helped.

The pool he had mentioned lay in the bottom of a circular hollow, as was usually the case. Also as usual, it filled only a small part of the hollow, representing all that was left when the nightly lake which did cover the spot boiled almost dry by day. He had assumed for years, on rather inadequate data but without any contradicting evidence so far, that the stuff was oleum—principally sulfuric acid with a heavy lacing of metal ions from the surrounding rocks which had been dissolved in the nightly rain, and an equilibrium amount of the atmospheric gases. He

ran the robot through it to make sure of its depth—the slope of the rock sometimes changed rather abruptly at the "acid line," so judging by eye was insufficient—and then waited until Nick returned with the bucket.

"Is that thing tight, Nick? Will it hold liquid without leaking?" In reply, Nick pushed the leather container beneath the surface of the pool, drew it up brimming, and waited for the fluid on the outer surface to drain away. This happened quickly, since the "leather" was not wet by the oleum, and in a few seconds only a dozen or so hazily-defined drops were clinging to the outer surface. Nick held the container up at the end of one arm for another minute or so, but nothing more fell.

"I guess it's tight, all right," he said at length. "Why is it important? We'll never have to carry this stuff very far; there are pools of it everywhere."

"I'm not interested in keeping it *in* the bucket, Nick. Empty it again." The student obeyed. "Now set the bucket right side up in the pool, and let go of it . . . no, don't fill it." The transmission delay made this warning a trifle late; Nick emptied what had gotten into the container and started over. "That's right—*on top* of the pool. Now let go of it." Nick obeyed. The weight of the strap that served as a handle promptly tipped it over, and three or four gallons of oleum poured in. This weighted the bottom sufficiently to bring the edge to the pool's surface, and there the bucket remained. Nick was startled; he had taken for granted that the thing would plummet to the bottom.

"I'm afraid I've been a trifle negligent with your education," remarked Raeker, "though I suppose the rather ambiguous nature of most of this planet's liquid gives me some sort of excuse for leaving out Archimedes' Principle. Try it again, Nick, and this time put a couple of stones in the bucket first."

As might have been expected anywhere on Tenebra except the actively orogenic regions, there were no loose stones in the neighborhood; but by packing the bottom third of the container with broken-off shrubbery, Nick contrived to achieve the spirit of the teacher's order. This time the bucket floated almost upright, and with a good deal of freeboard.

"See how much more you can put in it before it sinks," said Raeker. Nick obeyed, without asking for the meaning of the new verb; it was clear enough from context. To his unconcealed astonishment, it proved possible to fill the bucket with the brittle growths without actually forcing it under, though a ripple half an inch high would have accomplished this end—a fact Raeker at once proceeded to demonstrate. At his order, Nick splashed vigorously in the pool with his feet; waves curled over the edge of the bucket, and it sank almost at once.

"Do you think it would be possible to make something on that general line, capable of keeping several people from sinking?" asked Raeker.

Nick wasn't sure. "Just on the face of things, I'd say yes," he replied, "but I don't really see why that works at all. If I knew, I could answer more sensibly. What use would it be if we had such a thing?"

Raeker took this opportunity to give a rapid explanation of Archimedes' Principle, plus an account of Easy's reports, mentioning the brief appearance of the cave scout and concluding with the probability that the bathyscaphe had reached the sea. Nick could see the rest of the situation for himself, and, characteristically, went a trifle overboard in his enthusiasm.

"I see!" he exclaimed. "The ship is in the ocean where no one can get at it, so you've showed us how to travel on the ocean itself. We could get out to the ship with this big bucket you want us to make, and pull the ship along with us to the other side, where Swift wouldn't bother us. It's a good idea. We'll start making the bucket as soon as the others come back—in fact, we can start collecting leather for it right now—"

"Hold up a minute, Nick. Crossing oceans, even oceans as small as Tenebra probably has, isn't something you do quite that casually. Also, there's another point to be considered. What if you were out in this . . . this bucket at night?"

Nick thought briefly. "Why couldn't we carry firewood and torches?"

"You could; but that's not the point. What happens to the ocean at night?"

"It comes up; but wouldn't the bucket go up with it?"

"I'm afraid not. In going up, the ocean decreases enormously in density, and I'm afraid that rather early in the evening you'd find it oozing over the side of your bucket—and you saw what happened just now when the same thing occurred here in front of us."

"Yes," admitted Nick thoughtfully. He was silent for a time. Then he became enthusiastic again. "Wait a minute. The bucket sinks because liquid gets into it, and it is no longer lighter than the liquid it displaces—right?"

"That's right."

"Suppose, then, that instead of a bucket we have a closed bag of air?" Nick asked. "If it's tied shut the sea can't get in, no matter how much it rises."

"But if the sea becomes no more dense than the air?"

"At least when the water boils out of the sea in the morning the bag will float once more."

"All that is true only if your bag doesn't leak at all. I'd rather you didn't risk your lives by staying at sea during the night, though your idea of bags rather than buckets is a good one. It would be smart to make a ship of many bags tied together, so that if some of them do leak you will still float."

"That's plain enough. But why shouldn't we stay out at night? What if night falls before we get the ship across the ocean?"

"You won't cross the ocean. You'll work on it during the daytime, and come ashore again at night."

"But how about Swift?"

"I'll take care of him. Don't you plan to keep the agreement we offered to make with him?"

Nick thought for a moment. "I suppose so, if he really agrees. If that was one of his scouts who found the ship last night, maybe he just decided to find it for himself."

"I still think that find was sheer chance. If it should turn out that you're right, we'll solve that one when we face it. Easy is willing to face Swift, she says. Right, young lady?"

"Certainly."

"Do you *like* Swift?" Nick asked her in some surprise. "I can't forget that he killed two of my friends."

"I've never met him," Easy pointed out. "I admit it was bad for him to attack your village that way, but probably he couldn't think of any other way to get what he wanted. If you're smart, Nick, I'll bet you could have him doing just what *you* want—and make him think it's his own idea all the time."

"I never heard of such a thing!" exclaimed Nick.

"Well, listen in if Swift finds us again," replied the girl, with a confident tone that surprised even her father. "You'll learn something."

Rich signed to Raeker to cut off his transmitter for a moment, and made a comment. "I hope that young squirt isn't getting too cocky. I admit she's giving Nick just what I've given her

on and off all her life; I just hope she's up to it if the occasion arises. That Swift isn't human, or Drommian either!"

Raeker shrugged. "I'm hoping she won't have to try. In the meantime, I'd much rather have her confident than scared senseless."

"I suppose you're right." Rich looked at the screen, where his daughter's confident expression glowed as she enlarged on her theme to the surprised and still doubtful Nick. Raeker listened with amusement for a while, but finally suggested tactfully that she tell him something about boat-building; Nick knew even less about that than he did about diplomacy, and was more likely to need the information. Easy was perfectly willing to change the subject as long as she could keep talking.

Presently 'Mina, who had kept faithfully to his watchman's duties at one of the windows, called to her with the information that he thought he could see the surface. Easy broke off and left the control room hastily, calling back after a moment that her young friend seemed to be right. It was not until the upper observation windows of the bathyscaphe had actually emerged into the "air" that Raeker remembered something; he had missed an opportunity to check on the mysterious sea life originally reported by Nick. Aminadorneldo had made no mention of any such creatures during his last period of watch, but Raeker didn't know the young Drommian well enough to feel sure he'd have reported them without special instructions. This was obviously not the time to ask; Easy's eager tongue was busy with more up-to-date reports.

"We're farther out to sea than you thought we would be, Dr. Raeker," she called. "I can just barely see the shore, at the very limit of our hottest lights. I can't make out any details, really; but I think maybe there are some points, or maybe islands, sticking out our way."

"Can 'Mina see anything more?"

"He says not," came Easy's answer after a brief pause. "He doesn't seem to see quite as well as I do, anyway, I've noticed."

"I see. I suppose you can't tell whether you're moving or not."

"The sea is perfectly smooth, and there aren't any waves around us. There's nothing to tell by. The only things to see are those big jellyfish things floating in the air. They're moving slowly in different directions, more of them toward shore than away from it, I think. Let me watch them for a minute." It was considerably more than a minute before she could make up her mind that the first impression had been right. Even then she admitted willingly enough that this was not evidence of the bathyscaphe's motion.

"All right," said Raeker when this had been settled. "Just keep an occasional eye on the ocean to make sure nothing happens, and give advice to Nick as long as he'll listen to you. He'll do what he and Betsey can about it, but that won't be much before the others get back. They'll

probably be gone until tomorrow night, Tenebra time—between five and six days on your clock."

"All right, doctor. We'll be fine. It's rather fun watching those flying jellyfish."

Raeker opend his mike switch and settled back thoughtfully, and with some satisfaction. Everything seemed to be progressing properly; perhaps somewhat more slowly than he would have liked, but as rapidly as could reasonably be hoped. This feeling must have showed on his face, for his thoughts were read quite accurately.

"Pleased with yourself, I take it, Man!" The speaker did not need to introduce himself. Raeker endeavored to control both his features and his feelings, with questionable success.

"Not exactly, councilor—"

"Why *not exactly?*" shrilled Aminadabarlee. "Why should you feel any remote sense of satisfaction? Have you accomplished anything at all?"

"I think so," Raeker answered in some surprise. "We know very nearly where your boy is, and we should have a rescue team out there in a week or ten days—"

"A week or ten days! And then you'll have to give the team members degrees in electrical engineering, and then hope the wiring of that ridiculous craft hasn't corroded beyond repair in the interval. How long do you think the actual *rescue* will take?"

"I'm afraid I couldn't hazard a guess," Raeker answered as mildly as he could. "As you point out so clearly, we don't know how much damage may have been done to wiring exposed by the inspection ports. I realize that it is hard to wait, but they've been getting on all right for a month now—"

"How stupid can even a human being get?" asked the Drommian of the world at large. "You were talking to the ground just now, and heard as clearly as I did the human child's remark that my son didn't see as well as she did."

"I heard it, but I'm afraid the significance escaped me," admitted the man.

"Drommian eyesight is as good and acute as that of human beings, if not better, and my son's has always been normal for his age. If he can't see as well as the human with him, something's wrong; and my guess is that the low oxygen concentration is affecting him. I gather your engineers made no particular provision for altering that factor of the vessel's environment."

"They probably didn't, since the crew was to be human," admitted Raeker. "I did not recognize the emergency, I must admit, councilor; I'll try to find means of speeding up the operation—for example, I can probably get pictures of the wiring exposed by the ports from the engineers, and have Nick briefed on what to look for while he's waiting for the others. My relief is due in half an hour; as a matter of fact, he'd probably be willing to come now if I called him. Have you been able to

get medical advice from Dromm yet? I understand a human doctor arrived a few hours ago, and has been finding out what he can about the diet available on the bathyscaphe."

"Eta Cassiopeia is half a parsec farther from here, and I did not get a message torpedo off quite so quickly," admitted the Drommian. "One should be here shortly, however."

Raeker felt that he had made a smart move in forcing the nonhuman to make such an admission; unfortunately, admitting mistakes under pressure does not improve the temper of the average human being, and Aminadabarlee's race was quite human in this respect. He could not be insultingly superior for the moment; even his standards prevented that; but the required repression of choler was a good deal more dangerous to peace than his usual superciliousness. He retired to his own room—which the "incompetent" human engineers had at least set up with a decent atmosphere — and brooded darkly. There were lots more message torpedoes.

With the Drommian gone, Raeker decided not to bring his relief on too early; but as soon as the fellow did show up, he made his way to the engineering section and outlined the proposal he had made on the spur of the moment to Aminadabarlee. Sakiiro and his colleagues agreed that it was worth trying, and they all settled down with their blueprints to decide what would be the best things to tell Nick and the easiest way to get the information across.

They spent some hours at this. Then Raeker went to eat, and back to his own room to sleep for a few hours. When he reappeared in the observation room, his relief rose gladly.

"Easy has something to report," he said, "but she wants to tell you personally." Raeker raised his eyebrows, dived into his station, and energized the microphone.

"I'm here, Easy," he said. "What's happened?"

"I thought I'd better tell you, since you're the one who said we'd stay put," the girl responded at once. "We've been drifting closer to shore for five or six hours, now."

Raeker smiled. "Are you sure the shore isn't just getting closer to you?" he asked. "Remember, the sea level had a long way to go down even after you got to the surface."

"I'm quite sure. We've been able to keep our eyes on one piece of shore, and the sea has stayed right by it while we got closer. It has a feature which makes it easy to recognize, though we weren't able to make out very clearly just what the feature was until now."

"What is it?" asked Raeker, seeing that he was expected to.

Easy looked at him with the expression children reserve for adults who have made a bad mistake.

"It's a crowd of about fifty natives," she said.

X

Nick, for the hundredth time,

looked toward the ocean and fumed. He couldn't see it, of course; to be out of its reach by night the camp had had to be placed well out of its sight by day, but he knew it was there. He wanted to see it, though; not only to see it but to ride on it. To explore it. To map it. That last idea presented a problem which occupied his mind for some time before he dropped it. Fagin would know the answer; in the meantime there was a boat to be built. That was the real annoyance. Nothing, really, could be done about that until the search teams got back. While it didn't actually take all of his and Betsey's time to watch the herd and gather firewood, neither could do any very effective hunting with those jobs in the background; and the boat was very obviously going to take a lot of skins.

Nick wasn't sure just how many, and to his surprise Fagin had refused to offer even a guess. This was actually quite reasonable, since Raeker, who was not a physicist, was ignorant of the precise densities of Tenebra's oceans and atmosphere, the volume of the average leather sack which might be used in the proposed boat, and even the weight of his pupils. He had told Nick to find out for himself, a remark which he had made quite frequently during the process of educating his agents.

Even this, however, called for a little hunting, since it seemed a poor idea to sacrifice one of the herd to the experiment. Betsey was now scouring the surrounding valleys in the hope of finding something big enough to serve—the floaters of the vicinity had already learned to leave herd and herders alone, and those killed or grounded in the process had long since been disposed of by scavengers. Besides, their skins were much too frail to make good leather.

There was no serious doubt that Betsey would find a skin, of course, but Nick wished she'd be quicker about it. Patience was not one of his strong points, as even Easy had already noticed.

He was a little mollified when she came; she had brought not just the kill, but the skin already removed and scaled—a job which Nick didn't mind doing himself, but it was at least that much less time spent before the actual experiment. Betsey had kept in mind the purpose to which the skin was to be put, and had removed it with a minimum of cutting; but some work was still needed to make a reasonably liquid-tight sack. It took a while to prepare the glue, though not so long for it to dry—strictly speaking, the stuff didn't dry at all, but formed a reasonably tenacious bond at once between layers of materials such as leaves or skin. Eventually the thing was completed to their satisfaction, and carried down to the pool where the bucket had floated a few hours before.

Nick tossed it in, and was not in the least surprised to see that it, too, floated; that was not the point of the experiment. For that, he waded in himself and tried to climb onto the half submerged sack.

The results didn't strike either

Nick or Betsey as exactly funny, but when Raeker heard the story later he regretted deeply not having watched the experiment. Nick had a naturally good sense of balance, having spent his life on a high-gravity world where the ground underfoot was frequently quite unstable; but in matching reflexes with the bobbing sack of air he was badly outclassed. The thing refused to stay under him, no matter what ingenious patterns he devised for his eight limbs to enable them to control it. Time and again he splashed helplessly into the pool, which fortunately came only up to his middle. A ten-year-old trying to sit on a floating beach ball would have gone through similar antics.

It was some time before anything constructive came of the experiment, since each time Nick fell into the pool he became that much more annoyed and determined to succeed in the balancing act. Only after many tries did he pause and devote some really constructive thought to the problem. Then, since he was not particularly stupid and did have some understanding of the forces involved—Raeker had not been a complete failure as a teacher—he finally developed a solution. At his instruction, Betsey waded into the pool to the other side of the sack and reached across it to hold hands with him. Then, carefully acting simultaneously, they eased the weight from their feet. They managed to keep close enough together to get all the members concerned off the bottom of the pool for a moment, but this unfortunately demonstrated rather clearly that the sack was not able to support both of them.

Getting their crests back into the air, they waded ashore, Nick bringing the bag with him. "I still don't know how many of these we're going to need, but it's obviously a lot," he remarked. "I suppose six of us will go, and two stay with the herd, the way the teacher arranged it this time. I guess the best we can do until the others get back is hunt and make more of these things."

"There's another problem," pointed out Betsey. "We're going to have quite a time doing whatever job it is Fagin wants done while trying to stand on one or more of these sacks. We'd better pay some attention to stability as well as support."

"That's true enough," admitted Nick. "Maybe now that we've done some experimenting, the teacher will be willing to give a little more information. If he doesn't, there's that other person whose voice he sends us—the one he says is in this ship we're to look for—by the way, Bets, I've had an idea. You know, he's been explaining lately about the way voices can be sent from one place to another by machines. Maybe Fagin isn't really with us at all; maybe that's just a machine that brings his voice to us. What do you think of that?"

"Interesting, and I suppose possible; but what difference does it make?"

"It's information; and Fagin him-

self always says that the more you know the better off you are. I suppose we don't really know this, but it's something worth keeping in mind until evidence comes in."

"Now that you've thought of it, maybe he'll tell us if we ask him," pointed out Betsey. "He usually answers questions, except when he thinks it's for the good of our education to work out the answers ourselves; and how could we check on this one experimentally—except by taking the teacher apart?"

"That's a point. Right now, though, the really important thing is to get this boat designed and built. Let's stick to that question for a while; we can sneak the other one in when there's less chance of getting a lecture about letting our minds wander."

"All right." This conversation had brought them to the top of the hill where the robot was standing, among the belongings of the village. Here they reported in detail the results of their experiment. Fagin heard them through in silence.

"Good work," he said at the end. "You've learned something, if not everything. Your question about stability is a good one. I would suggest that you build a wooden frame . . . oh, about the size and structure of one wall of a hut, but lying flat on the ground. Then the sacks can be fastened to the corners; any time one corner gets lower than the others, the bouyant force on it will increase, so the whole thing ought to be fairly stable."

"But wood sinks. How can you make a boat out of it?"

"Just count it as part of the weight the sacks . . . let's call those floats, by the way . . . have to carry. You'll need even more floats, but don't let it worry you. I'd suggest that the two of you start the frame now; you might be able to finish it by yourselves, since there's plenty of wood. Then you can start fastening floats to it whenever you can get hold of any; you make a few kills defending the herd every day, so you should make some progress.

"While you're doing that, you might lend your minds to another little problem. The bathyscaphe is not staying at sea, but is drifting toward the shore."

"But that's no problem; it *solves* our problems. We'll just have to travel south along the shore until we find it. You had already decided it must be south of us, you said."

"Quite true. The problem is the fact that Swift, with most of his tribe, seems to be standing on the shore waiting for it. Strictly speaking, Easy hasn't recognized Swift, partly because she can't tell one of you from another yet and partly because they aren't close enough, but it's hard to imagine who else it could be. This raises the question of whether Swift is accepting our offer, or proposes to keep the bathyscaphe and those in it for his own purposes. I suppose it's a little early to expect an answer from him; but if we don't get one some time today, I think we'll have

to assume we're on our own and act accordingly."

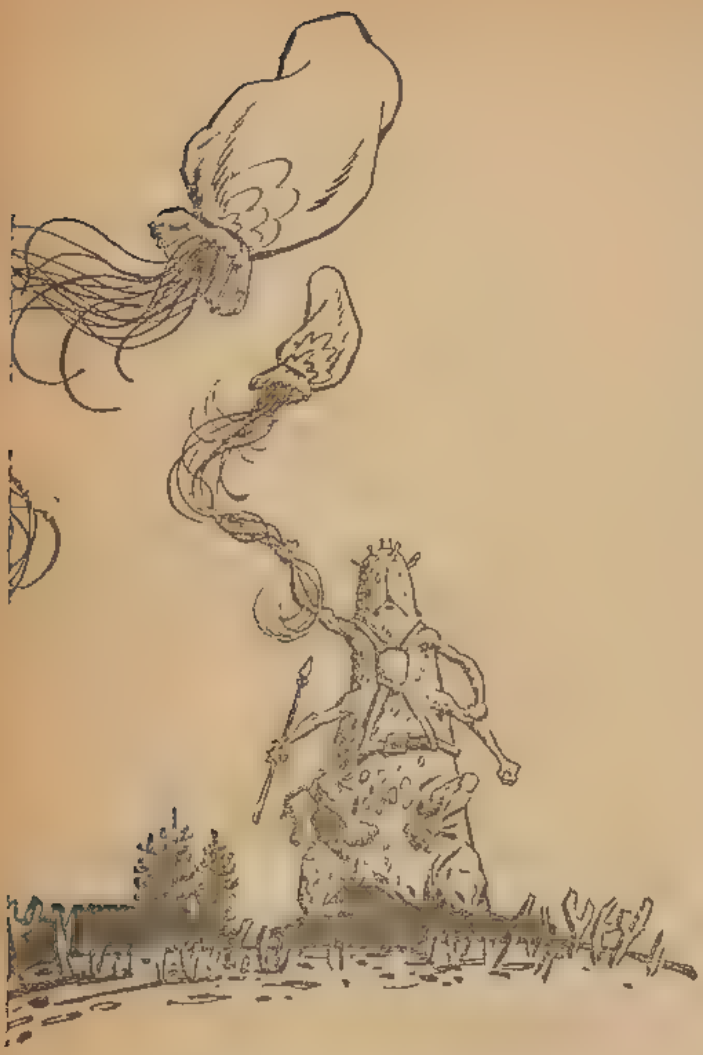
"How?"

"That is the problem I suggest you attack right now. I suspect that whatever solution you reach, you'll find the boat will figure in it; so go ahead and get it made, as far as you can."

The teacher fell silent, and his students fell to work. As Fagin had said, there was plenty of wood around, since the camp had not been there very long. Much of it, of course, was unsuitable for any sort of construction, having the brittleness of so many Tenebran plants; but a few varieties had branches or stems both long and reasonably springy, and the two were able to locate in an hour what they hoped would be enough of these. Actually cutting them with stone blades took rather longer, and binding them into a framework whose strength satisfied all concerned took longest of all. When completed, it was a rectangle some fifteen by twenty feet, made of about three dozen rods of wood which an Earthman would probably have described as saplings, lashed at right angles to each other into a reasonably solid grillwork. Thinking of it as a floor, neither Nick nor Betsey was particularly happy; the spaces were quite large enough to let their feet through, and the said feet were even less prehensile than those of a human being. They decided, however, that this was an inconvenience rather than a serious weakness, and shifted their attention to the problem of getting floats.

All this was reported to the teacher, who approved. The approval was more casual than the two realized, for

at the moment Raeker's attention was otherwise occupied. The bathyscaphe had now drifted within fifty yards of the shore and had there run aground, according to Easy. She had offered neither observation nor opinion as to the cause of the drift, and none of the scientists who had taken



so many reels of data about the planet had done any better. Easy herself did not seem bothered; she was now engaged in language practice across the narrow span of liquid that kept the bathyscaphe out of Swift's reach. Raeker lacked even the minor comfort of being able to hear the conversation. The microphones of the outside speakers were, somewhat sensibly, located by the observation ports, so that the girl had taken up her station where she would have to shout to be heard in the *Vindemiatrix*. She did not bother to shout; most of the time she didn't even think of Raeker or, to be embarrassingly frank, of her father. She had not been interested in the biology, geology, or the virtually nonexistent climatology of Tenebra; her interest in the rescue operation, while profound and personal, had reached the point where she could only wait for information which was always the same; but here were people, and people she could talk to—at least, after a fashion. Therefore she talked, and only occasionally could anyone above get her attention long enough to learn anything.

She did find out that Swift was one of those present on the nearby shore, and Raeker duly relayed this information to Nick; but when questions were asked such as whether Swift planned to follow the suggestion he must by now have received via Nick's ex-prisoner, or how he had been able to find the bathyscaphe so quickly, no satisfactory answer was forthcoming. Raeker couldn't decide whether the trouble was Easy's incomplete mastery of the language, her lack of interest in the questions themselves, or a deliberate vagueness on Swift's part. The whole situation was irritating to a man who had exercised fairly adequate control over affairs on Tenebra for some years past; at the moment a majority of his agents were out of contact, what might be called the forces of rebellion were operating freely, and the only human being on the planet was neglecting work for gossip. Of course, his viewpoint may have been slightly narrow.

Things looked up toward the middle of the Tenebran afternoon. Jim and Jane returned, long before they had been expected, to increase the strength of the shipbuilding crew. They reported unusually easy travel and high speed, so they had reached their first search area on the initial day's travel, examined it, and been able to cover the other and return in something like half the expected time. They had found nothing in their own areas. They had seen a light to the south, but judged that John and Nancy would cover it, and had decided to stick to their own itinerary and get the desired report in. It was quite impossible, of course, for them to read any expression from the robot, and Raeker managed to keep his feelings out of his voice, so they never suspected that their report was in any way unsatisfactory.

For a short time, Raeker toyed with the thought of sending them out again to check the light; but then he reflected that in the first place John and Nancy would, as Jim said, have done so, and in the second place the 'scaphe had effectively been located, and he decided the pair were of more use getting leather. The lack of initiative they had just displayed tended to support this conclusion. He spoke accordingly, and the two promptly took their spears up again and went hunting.

"One point may have struck you, Nick," Raeker said after they had gone.

"What is that, Teacher?"

"They saw the light to the south of their search area. That suggests strongly that the shore of this sea bends westward as it is followed south; and since the caves of Swift lie in the same direction, it is fairly likely that they are closer to the shore than we realized. This may account for Swift's finding the ship so quickly."

"It may," admitted Nick.

"You sound dubious. Where is the hole in the reasoning?"

"It's just that I hunted with Swift's people for a good many days, and covered a lot of territory around his caves in the process, without either encountering the sea myself or hearing it mentioned by any of his people. It seems hard to believe that the lights of your missing ship could be seen a hundred miles, and something like that would be necessary to reconcile both sets of facts."

"Hm-m-m. That's a point I should have considered. That light may call for more investigation, after all. Well, we'll know more when John and Nancy come in."

"We should," agreed Nick. "Whether we actually will remains to be seen. I'm going to get back to fastening this float we've just glued, onto the frame. I'm a lot surer that something constructive will come from that." He went off to do as he had said, and Raeker devoted himself to listening. Thinking seemed unprofitable at the moment.

With two more hunters, the raft progressed more rapidly than anyone had expected. The region of the

new camp was not, of course, as badly hunted out as had been the neighborhood of the old village, and skins came in about as fast as they could be processed. Float after float was fastened in place, each corner being supplied in turn so as to keep the balance—Nick and Betsey were very careful about that. By the late afternoon so many had been attached that it was less a matter of keeping track of which corner came next than of finding a spot not already occupied —the frame was virtually paved with the things. No one attempted to calculate the result on its stability. If anyone thought of such a problem, he undoubtedly postponed it as something more easily determined empirically.

The work was not, of course, completely uninterrupted. People had to eat, there was the need to gather firewood for the night, and the herd had to be guarded. This last, of course, frequently helped in the "shipyard" by providing leather without the need of hunting, but sometimes the fighting involved was less profitable. Several times the creatures attacking the herd were floaters, to everyone's surprise.

These creatures were reasonably intelligent, or at least learned rapidly as a rule to avoid dangerous situations. They were also rather slow-flying things—resembling, as Easy had said, the Medusae of her home world in their manner of motion—so that after a fairly short time in any one spot, and the killing of a reasonable number of them, the survivors learned to leave the herd alone. Nick and his friends had believed this end accomplished for the present camp; but in the late afternoon no less than four of the creatures had to be faced by the herders in not much more than an hour. The situation was both unusual and quite painful, since while a competent spearsman could count surely enough on grounding such a creature it was nearly impossible to do so without suffering from its tentacles, whose length and poisonous nature went far to offset their owner's slow flight.

The attention of all four members of the group was naturaly drawn to this peculiar state of affairs, and even work on the raft was suspended while the problem was discussed. It was natural enough that an occasional floater should drift into the area from elsewhere, but four in an hour was stretching coincidence. The group's crests scanned the heavens in an effort to find an explanation, but the gentle air current toward the southwest was still too feeble at this distance from the volcano even to be felt, much less seen. The sky of Tenebra during the daytime is much too featureless to permit easy detection of something like a slow, general movement of the floaters; and the individual movement of the creatures themselves didn't help. Consequently, the existence of the wind was not discovered until rainfall.

By this time, the raft seemed to be done, in that it was hard to see where any more floats could be at-

tached. No one knew, of course, how many people it would support; it was planned to carry it to the ocean when the others returned, and determine this by experiment.

When the evening fires were lighted, however, it was quickly seen that the rain was not coming straight down. It was the same phenomenon that John and Nancy had observed the night before, complicated by the lack of an obvious cause. After some discussion, Nick decided to light three extra fires on the northeast side of the usual defenses, compensating for the extra fuel consumption by letting an equal number on the opposite side of the outer ring burn out. A little later he let go even more on the southwest, since no drops at all came from that direction even after the convection currents of the camp were well established. He reported the matter to Fagin.

"I know," replied the teacher. "The same thing is happening where the ship is down, according to Easy. The drops are slanting very noticeably inland. I wish she had some means of telling direction; we could find out whether the coast is actually sloping east where she is, or the rain actually moving in a slightly different direction. Either fact, if we know it, could be useful."

"I suppose she can't feel any wind?" asked Nick.

"Not inside the ship. Can you?"

"A little, now that the motion of the drops proves there must be some. I felt more around those fires I lighted when we were getting away from the caves, but that's the only time. I think it's getting stronger, too."

"Let me know if you become more certain of that," replied Raeker. "We'll keep you informed of anything from the other end which may have a bearing on the phenomenon." Raeker's use of "we" was apt; the observation and communication rooms were filling with geologists, engineers, and other scientists. The news that Tenebra was putting on its first really mysterious act in a decade and a half had spread rapidly through the big ship, and hypotheses were flying thick and fast.

Easy was giving a fascinating, and fascinated, description of events around the bathyscaphe; for while she and her companion had by now seen plenty of the nightly rainfall, they were for the first time at a place where they could actually observe its effect on sea level. The shore was in sight, and the way the sea bulged up away from it as water joined the oleum was like nothing either child had ever seen. Looking downhill at the nearby shore was rather disconcerting; and it continued, for as the bathyscaphe rose with the rising sea level it was borne easily inland with the bulging surface. This continued until the density of the sea fell too low to float the ship; and even then an occasional bump intimated that its motion had not stopped entirely.

"I can't see anything more, Dad," Easy called at last. "We might as well stop reporting. I'm getting sleepy, anyway. You can wake us up if you need to."

"All right, Easy." Rich made the answer for Raeker and the other listeners. "There's nothing much going on at Nick's camp right now except the wind, and that seems more surprising than critcal." The girl appeared briefly on the screen, smiled good night at them, and vanished; Aminadorneldo's narrow face followed, and that station had signed off for the night.

Attention naturally shifted to the observation room, where the surface of Tenebra could actually be seen. Nothing much was happening, however. The robot was standing as usual in the middle of the rather unbalanced fire circle, with the four natives spaced around it—not evenly, tonight; three of them were rather close together on the northeast side and the fourth paced a beat that covered the remaining three quarters of the circle. It was easy to see the reason with a few minutes' observation; for every fire snuffed out on the single man's beat, a full dozen went on the northeast. Someone was continually having to lope forward with a torch to relight one or two of the outer guard flames on that side. Occasionally even an inner fire would be caught, as a second drop blew too soon through the space left unguarded by the effect of a first. There seemed no actual danger, however; none of the natives themselves had been overcome, and their manner betrayed no particular excitement.

While Raeker had been eating, his assistant had had one of the pupils pace off a course which he compared with the robot's length, and then by timing the passage of a raindrop along it clocked the wind at nearly two miles an hour, which as far as anyone knew was a record; the information was spread among the scientists, but none of them could either explain the phenomenon or venture a prediction of its likely effects. It was an off-duty crewman, relaxing for a few minutes at the door of the observation chamber, who asked a question on the latter subject.

"How far from the sea is that camp?" he queried.

"About two miles from the daytime coast line."

"How about the night one?"

"The sea reaches the valley just below that hill."

"Is that margin enough?"

"Certainly. The amount of rainfall doesn't vary from one year to the next. The ground moves, of course, but not without letting you know."

"Granting all that, what will this wind do to the shore line? With the sea not much denser than the air, the way it is late at night, I should think even this measly two-mile hurricane might make quite a difference." Raeker looked startled for a moment; then he glanced around at the others in the room. Their faces showed that this thought had not occurred to any of them, but that most—the ones, he noted, most entitled to opinions—felt there was something to it. So did Raeker himself, and the more he thought of it the more worried he became. His expression was perfectly

plain to Rich, who had lost none of his acuteness in the last month of worry.

"Think you'd better move them back while there's time, doctor?" he asked.

"I'm not sure. It isn't possible to move the whole camp with just the four of them, and I hate to leave any of their stuff to be washed away. After all, they're fifty feet higher on that hill than the sea came before."

"Is fifty feet much, to that sea?"

"I don't know. I can't decide." The expression on Rich's face was hard to interpret; after all, he had spent his life in a profession where decisions were made whenever they had to be, with the consequences accepted as might be necessary.

"You'll have to do something, I should think," he said. "You'll lose everything if the sea gets them while they're there."

"Yes, but—"

"Never mind," the diplomat said, nodding toward the screens. "We didn't think of it in time anyway, I guess. Did that happen so early last night?"

Raeker looked, and any contempt Rich may have felt for the scientist's indecisivness vanished. There was no mistaking the liquid curling sluggishly around the hills to the east and gleaming slickly in the firelight. Raeker started giving orders.

"Nick! All of you! Take one second to look at what's coming from the east, then get every map you can lay your hands on; make as secure a bundle as you can of them, and tie them to the boat. Then take your weapons and do the same. If there's time, select whatever you consider the most important of what you have and tie it into the wagon. Maybe we'll be able to find it again afterward. When the sea gets really close, get onto the boat and tie yourselves on firmly; be sure you leave enough rope for the job. I'd rather lose everything in that camp than one of you."

"But we don't know the boat will carry all of us, to say nothing of the maps and things," objected Nick.

"I know it. That's why you and the rest are being tied on. If it floats, well and good; if it doesn't at least you'll stay together."

"And be eaten together."

"If you don't float, I'll be able to stay with you. I may not be much of a fighter, but I'll do my best. It's the only thing we can do; you'll never get away from that flood. Get moving!"

The four obeyed without further argument. The men watched the flood in silence, though one or two seemed to have a little trouble remembering that it was nearly two hundred thousand miles away. It did look rather convincing on the screens; rather like honey pouring toward a trapped fly. While the nearest hills were still partly above the surface, tongues of it were projecting glacierlike between them and were on the point of surrounding the camp, while not very much farther back—well within the area lighted by the camp fires—the surface was

curving above the robot's level. It resembled a slow motion picture of an approaching tidal wave, except for the odd vagueness of the sea's boundary.

That vagueness destroyed Raeker's hope. Oleum normally had a fairly distinct surface; evidently the sea had already been heavily diluted by the rain. That meant there was no point in expecting the raft to float. Its air-filled sacks were nearly half as dense as the straight acid; with this diluted stuff their bouyancy would be negligible.

He was almost wrong, as it turned out. The sea oozed up around the hill, snuffing the fires almost at a single blow, and for an instant blurred the picture transmitted from the robot's eyes as it covered the camp. Then the screens cleared, and showed the limp figures of the four natives on a structure that just barely scraped what had now become the bottom of the ocean. It moved, but only a few inches at a time; and Raeker gloomily sent the robot following along.

XI

Nights—Tenebran nights, that is—were hard on the Drommian, Aminadabarlee. They were even harder on any men who had dealings with him while they lasted. Seeing people engaged in work that had no direct bearing on the rescue of his son, and watching them for two Earthly days at a stretch, was hard for him to bear, even though he knew perfectly well that nothing could be done while the agents on the ground were immobolized or actually unconscious. This made no difference to his emotions; somebody, or everybody, should be doing *something,* his glands told him. He was rapidly, and quite unavoidably, coming to regard human beings as the most cold-blooded and unco-operative race in the galaxy. This was in spite of the skilled efforts of Rich, who had plenty to keep him professionally busy.

So far the great nonhuman had not descended to physical violence, but more than one man was carefully keeping out of his way. These were the ones least familiar with Drommians—so far. Raeker had noted that the number was increasing.

Raeker himself wasn't worrying; he wasn't the sort. Besides, he was occupied enough to keep his mind off Dromm and its impulsive natives. The robot, fortunately, had had no fighting to do, since nothing in the form of animal life had approached the raft and its helpless passengers, or even been sighted by the carefully watching robot. This was a relief in one way, though Raeker was professionally disappointed. He had wanted to learn something of the creatures responsible for the loss to his students' herd a few nights before, and who could apparently live in a remarkably small oxygen concentration. Still, the four tied to the raft were fairly safe, though no one dared let them drift far from the robot; a constant watch was necessary.

As the night wore on, the vagrant

currents which had been shifting raft and occupants became fewer, and so much weaker that they were no longer able to move the assembly, whose effective weight must have been only a few pounds. The man in control of the robot found it possible to leave the machine motionless for longer and longer periods; in fact, at one point Raeker almost went to sleep in the control chair. He was aroused from a doze by the shrill voice of the Drommian, however—"And Earthmen expect people to work with them!" in what even a man could recognize as a contemptuous tone—and did not repeat the slip. It didn't matter; the raft's passengers were drifting unharmed when day arrived.

This period was the hardest, as far as standing guard was concerned; as the water began to boil back out of the sea, the latter's density increased, and the raft began to float. It was extremely fortunate that there were by then no currents at all; raft and passengers went straight up. Unfortunately, but somewhat naturally, it turned upside down as it went, so that for a couple of hours the robot operator had the annoyance of seeing the natives hanging from the underside of the floating platform while they very gradually led the surface of the ocean back toward the ground. They had drifted away from the hilltop during the night, and eventually wound up floating in a relatively small pool in one of the nearby hollows. When it finally became evident that the pool would shrink no farther, the robot had to take action.

Fortunately, the oleum was shallow—so shallow that the raft was supported more by the bodies under it than by its own buoyancy. Raeker guided the machine through the liquid, pushing the four unconscious natives ahead of it to the other side. The raft naturally came along, but eventually the rather untidy heap was dripping at the edge of the oleum pool, with the foundation members struggling gradually back to consciousness.

By this time the bathyscaphe was also out of the sea. Like the raft, it had wound up in a pool at the bottom of a valley; unlike it, there was no question of its floating. The pool was too shallow. As a result, Easy and her friend found themselves in their pressure-tight castle fully equipped with a moat, which effectively prevented Swift and his crew from reaching them.

For Swift was there. He turned up within an hour of the time the pool had finished shrinking, in spite of the considerable distance the bathyscaphe must have drifted during the night. It was out of sight of the sea, Easy reported; the wind that had been moving everything else inland had brought the ship along. It didn't bother her; she said that they were getting along splendidly with Swift, and didn't seem too worried when told about Nick's reverses of the night. Rich lost his temper for the first time when he learned that Raeker had carelessly told the child about the de-

struction of the camp, and didn't regain it until the girl's voice made it perfectly clear that the story hadn't affected her morale.

Raeker himself was thinking less about her than about his rescue operation, at the moment; that was why he had been so careless with his words. Nick and Betsey, Jim and Jane were all safe; the maps had remained attached to the raft, and so had most of the weapons. However, it was going to take a little while to find just where they were, short as the distance they had drifted probably was; and when they did find the camp site, it seemed rather unlikely that they would find much else. The herd would be gone, or nearly so; the wagon—who could tell? A similar period under an Earthly ocean would write it off completely, even in the off chance that it could be found. Here, there was no saying, but Raeker was not optimisitc.

Finding the site of last night's fire proved easier than expected. The wind proved to be a clue, when it finally occurred to someone—Jim, rather to Raeker's surprise. He and Jane, of course, had bucked it all the way back from their search areas, though they had not attached any meaning to it at the time; now it served to restore the "sense of direction" which for Tenebrans as for humans was a compound of memory and the understanding of elementary natural phenomena. Once they knew the direction of the sea, there was no more trouble; there was no question that they had drifted pretty straight inland. The wagon and the remains of the watch fires were found in an hour. Raeker was really startled to find it and its contents intact; the mere fact that the two-mile hurricane had changed from gas to scarcely denser liquid had made no difference to most of the solid objects in its path.

"I think we can save a little time," he said at length, when the status of the group's belongings had been determined. "We can go back to the sea now, carrying the boat with us. We'll leave the cart, with a written message for the others; they can either follow us or start moving camp, depending on what seems best at the time they get back. We'll test out the boat, and search as far south along the coast as time permits today."

"What do you mean by that?" asked Nick. "Do we search until dark, or until there's only enough time to get back here before dark?"

"Until nearly dark," Raeker replied promptly. "We'll go south until we decide it's far enough, and then go straight inland from wherever we are so as to get away from the ocean in time."

"Then the others had better move camp no matter what time they get back, and head south with the cart. We're going to have a food problem, and so are they, with the herd gone."

"Gone? I thought I saw quite a few, with Jim and Jane rounding them up."

"That's true, they're not all gone; but they're down to where we can't

afford to eat any until a few more hatch. We couldn't even find scales of the others, this time."

"You couldn't? And I didn't see any creatures traveling around while you were in the sea, either. It seems to me that your missing cattle are more likely to have strayed than been stolen."

"That may be, but they're gone in any case, as far as we're concerned. If all four of us are heading for the sea right away to test this boat, we won't be able to look for them."

Raeker thought rapidly. Loss of the herd would be a serious blow to his community; remote-control education cannot, by itself, transform a group of people from nomadic hunters into a settled and organized culture with leisure time for intellectual activity. Without the herd Raeker's pupils would have to spend virtually all their time finding food. Still, they would live; and unless Easy and her companion were collected pretty soon *they* probably wouldn't. The question really, then, was not whether any could be spared from the cattle-hunt but whether one or two or all would be more useful in testing the boat and, if the test were successful, subsequently searching for the bathyscaphe from it.

Certainly two people were less likely to sink the thing than four. On the other hand, four could presumably drive it faster—Raeker suddenly recalled that neither he nor Nick had given any thought to the method of propulsion the raft was to have. He supposed paddles or something of that nature would be about the only possible means; the thought of trying to teach Nick the art of sailing on a world where the winds were usually nonexistent and the nearest qualified teacher sixteen light-years away seemed impractical. With muscle power as the drive agent, though, the more muscles the better.

"All of you will come to the sea. We'll consider the herd problem later. If the boat won't carry all of you, the extra ones can come back and hunt for cattle. This search is important."

"All right." Nick sounded more casual than he actually felt; all his life, as a result of Raeker's own teaching, he had felt that the safety of the herd was one of the most important considerations of all. If this search were still more so, it must really mean something to the teacher; he wished he could feel that it meant as much to him. He didn't argue, but he wondered and worried.

The four of them were able to carry the boat easily enough, though bucking the wind made matters a little awkward—the wind was even stronger today, Nick decided. In a way, that was good; a last backward glance at the deserted remnants of the herd showed that a huge floater was being swept past them by the savage current and, in spite of all its efforts, could not beat its way back to the relatively helpless creatures. Nick pointed this out to his companions, and they all felt a little better.

The two miles to the sea were covered fairly rapidly, and no formalities were wasted in testing the boat. It was carried out into waist-deep oleum and set down, and the four promptly climbed aboard.

It supported them—just. The floats were completely submerged, and the framework virtually so. The difficulty was not one of keeping on the surface, but of keeping more or less level. The four were all of almost the same age, but they did differ slightly in weight. One side of the raft persisted in settling deeper whenever they stopped moving; each time this happened they all, naturally, made a scramble for the rising portion, and each time they inevitably overcontrolled so that the raft rocked and tipped precariously first one way and then the other. It took several minutes and much misdirected action and speech before they learned the trick; then they took longer still to learn the use of the paddles Fagin had told them how to make. The robot itself was not too much use; if it stayed ashore its operators couldn't see things on the raft very clearly, and if it crawled into the sea to any point near the vessel it couldn't make itself heard —the boundary between oleum and air was sharp enough to reflect sound waves pretty completely.

"Why do you have them looking at all?" Aminadabarlee asked acidly at this point. "The robot can travel along the shore as fast as they can paddle that ridiculous craft, and the bathyscaphe isn't at sea anyway. If you think those pupils are going to be of any use, why not have them *walk* with the machine?"

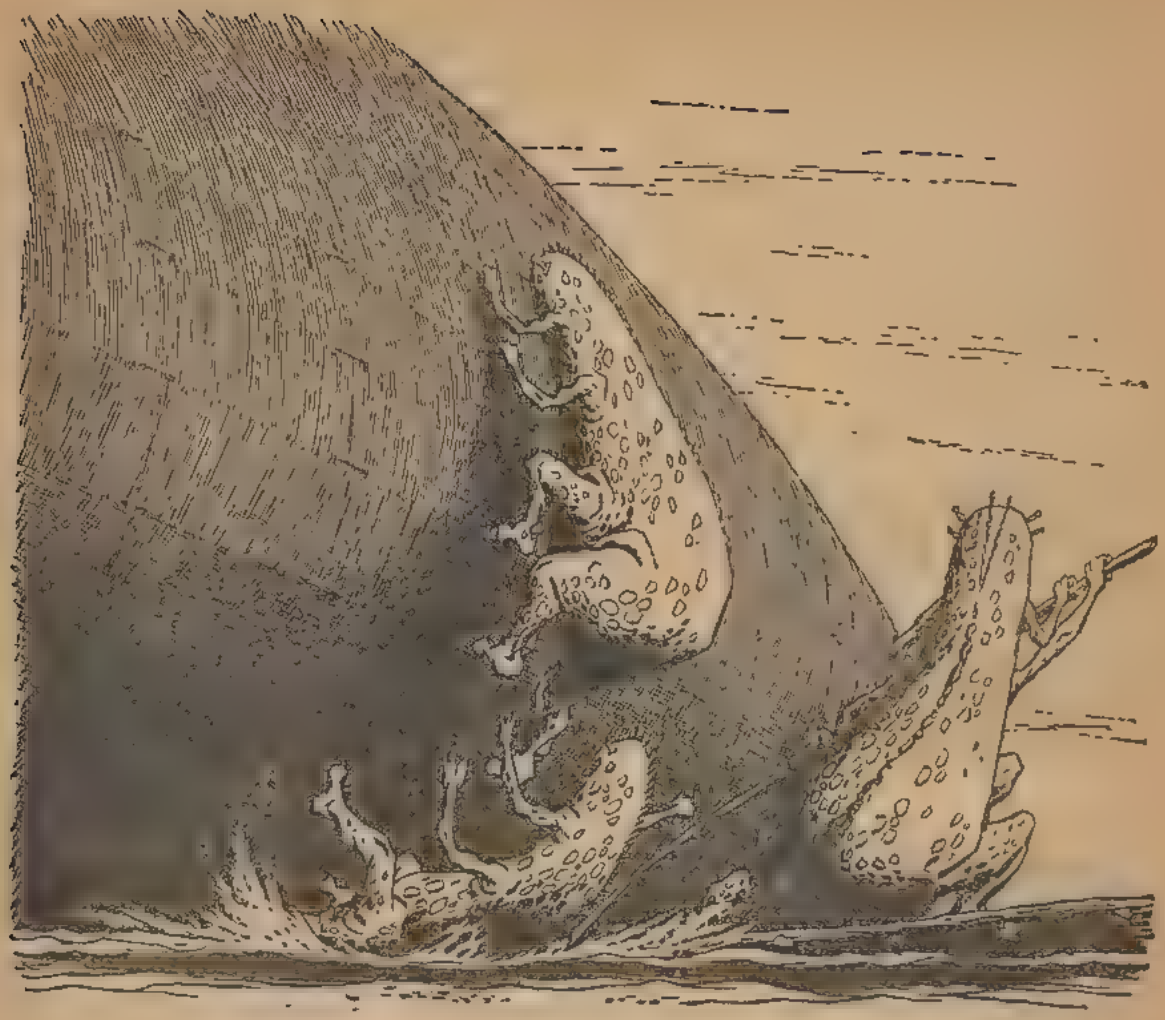
"Because, while all you say is true, the kids *are* inaccessible to the natives unless a boat is present. It doesn't seem likely that we'd save time by having Nick and his friends search on foot, and then have to go all the way back for the boat when they found the 'scaphe."

"I see," said the Drommian. Raeker cast a quick glance at him. The fellow was being unusually agreeable, all things considered; but the man had no time to ponder possible reasons. Nick and his companions were still too much in need of watching. He spoke over his shoulder, however, remembering Rich's injunction about being as courteous as possible to the big weasel. "There's one thing that might help a great deal, though. You've been talking to your son all along, just as Councilor Rich and I have been talking to Easy; do you suppose he'd be the better for something constructive to do down there?"

"What?"

"Well, if he's as good at picking up languages as Easy was supposed to be, maybe he'd do a better job than she at finding something out from the cave dwellers. Swift quite obviously knows where both our camp and the bathyscaphe are; it would be most helpful if someone could worm a set of directions out of him for getting from the one to the other."

The Drommian's face was unread-



able to Raeker, but his voice suggested what from him was high approval.

"That's the first sensible remark I've heard from a human being in the last five weeks," he said. "I'll explain to Aminadorneldo what to do. There's no point in expecting the human girl to do it herself, or to help him." The diplomat must be credited with what for him was the ultimate in tact, courtesy, and self-control—he had restrained himself from remarking that no human being could be expected to be helpful in a situation calling for intelligence.

He decided to go to the communication room in person, instead of working from Raeker's station—the relay system was efficient, but located in a corner which was rather inconvenient to him for anatomical reasons. Unfortunately, when he reached the other compartment it was even worse; the place was crowded with human beings. Rearing the front half of his long body upward he was able to see over them without any trouble, and discovered that the screen of the set tied in with the bathyscaphe was imaging the face of the human child. His own son was.

also visible, very much in the background, but only the human voice was audible—as usual, he reflected. The men were listening intently to her, and Aminadabarlee quite unthinkingly stopped to do the same before ordering the interfering creatures out of the way.

"No matter how we ask the question, we always get the same answer," she was saying. "At first, he seemed surprised that we didn't know; he's gotten over that now, but still says that Nick and Fagin told him where we were."

"No matter how often you say that, it sounds silly to me," retorted one of the scientists. "Are you sure it's not language trouble?"

"Perfectly sure." Easy showed no indignation, if she felt any at the question. "You wanted to know how he found us so easily, and that's what I asked him. He claims he was given the information he needed by Nick, who had it from the robot, and that's what I told you. I don't remember exactly what was said to that prisoner when Nick's people had him; but you'd better play back the transcript and see what you can get out of it. Either the prisoner himself was able to figure it out from what Nick said to him, or Swift was able to do it from the prisoner's repetition. The first seems to make more sense, to me."

There were few flies on Elise Rich. Aminadabarlee wouldn't have agreed with that, of course; her admission that she couldn't remember exactly what had been said in a conversation she had overheard lowered her considerably in his estimation. However, even he couldn't understand, any better than the listening scientists, what the cave dwellers had been able to learn from a brief description of country they had admittedly never seen.

Then an idea occurred to him, and he dropped back to the horizontal position for a few moments to think. This might really do some good; he almost felt guilty at the thought that he'd left all the serious planning in this matter to the human beings. If they'd only keep quiet for a minute or two and let him get his idea straight— But they didn't. They kept on calling excited remarks and questions to the child so far away.

"Wait a minute!" It was a geophysicist who suddenly came up with a point, Aminadabarlee thought, but he didn't pay enough attention to be really sure. "This may be a little farfetched; but a lot of fairly primitive peoples on Earth and other places get pretty darned good climate predictors —our ancestors knew when spring was coming, you know, and built places like Stonehenge."

"What's the connection?" Several voices asked this question, though not all in the same words.

"This planet has no weather, in our sense of the word; but its geomorphology goes on at a time-rate which almost puts it in the climate class. I just remembered that Nick's prisoner was told that the bathyscaphe stayed on one lake, motion-

less, for several days, and only then started to drift down a river to the sea. If we're right about Tenebran weather, *that must have been a brand-new river!* That information was enough for any native—at least for anyone who hadn't been cut off from the history or folklore or whatever the Tenebran equivalent may be of his race. They may never have been right on the scene of that river, but it was close enough to their regular stamping grounds so they could tell where it must lie."

"I'm going to check the lab alcohol!" commented one listener. The remark put the proponent of the new idea on his mettle.

"Easy!" he called. "You heard what I just suggested. Ask Swift if it's not true that he knows when things like new rivers and rising hills are going to happen. Ask him how he dares to live in caves in a cliff—which as far as any of us can see is apt to be knocked down by a quake any day!"

"All right," the girl said calmly. Her face vanished from the screen.

Aminadabarlee was too furious to notice that she had gone. How dare these little monsters take his very own ideas right out of his mind, and claim them for their own? He hadn't quite worked out the details of his notion, but it was going to be the same as the one the human scientist had broached; he was sure of that. Of course, maybe it was a bit farfetched—of course it was, now that he thought of it a little more carefully. The whole idea was the sheerest speculation, and it was a pity that the girl had been sent to waste time on it. He'd go in and show its weaknesses to his son, and suggest a more fruitful modification, as soon as he worked out its details—only then did he notice that Aminadorneldo had also disappeared from the view screen; he must have gone with the human girl. Well, that was all right; there was a litle more thinking to be done, anyway. He kept at it for fifteen or twenty minutes, scarcely noticing the human conversation around him, until the children reappeared. They reported without preamble and without apparent excitement.

"You seem to be right," Easy said. "They seem surprised that anyone wouldn't know when a place was going to become active in quakes, or when a lake was going to spill, and in what direction. They know it so well themselves that they have a good deal of trouble telling me what they use for signs." The geophysicist and his colleagues looked at each other almost prayerfully.

"Don't let them stop trying!" the first one said earnestly. "Get down everything they say and relay it to us, whether you understand it or not. And we were going to use Raeker's students to learn the crustal dynamics of this planet!"

This irrelevance was the last straw, as far as Aminadabarlee was concerned. Without regard to rules of courtesy, either human or Drommian, he plowed into the communications

room, his streamlined form dividing the human occupants as a ship divides water. He brought up in front of the screen and, looking past Easy's imaged face as though the girl were not there, he burst into an ear-hurting babble of his own language, directed at his son. None of the men interrupted; the creature's size and the ten clawed limbs would have given most of them ideas of caution even if they had known nothing of Drommians. As it was, Councilor Rich had spread some very impressive bits of information through the complement of the *Vindemiatrix,* so eyes weren't necessary.

The shrill sounds were punctuated by others from the speaker; apparently the son was trying to get an occasional word into the conversation. He failed, however; the older being's speech only stopped when he appeared to have run out of words to say. Then it was not Aminadorneldo who answered.

It was Easy, and she answered in her own language, since even her vocal cords couldn't handle Drommian speech.

"We've already told him, sir. Dr. Raeker asked me to let you know when you showed up; you had just left his room when we got the information to him, and I didn't see you until just now. He's told Nick, and the boat should be as close as they can bring it on the sea well before night. They'll start to bring it inland then; Swift says they should be able to see our lights from the sea, so the robot has started back to the camp to meet the others and start them on the way here."

The Drommian seemed stunned, but remembered enough of his manners to shift languages.

"You had already asked Swift to tell the way from the camp to where you are?" he asked rather lamely.

"Oh, yes. 'Mina thought of it some time ago. I should have told Dr. Raeker or one of you sooner." The news that it had been his son's idea calmed Aminadabarlee considerably; privately, most of the men in the room wondered how much truth the girl was speaking. They knew the effective age of the young Drommian, and they were coming to know Easy.

"How long will it take to get to you—for Nick, that is?" asked Aminadabarlee.

"Swift thinks by midafternoon, on foot; he doesn't know how fast the boat goes, though."

"Did you tell him about the boat?"

"Of course. He was wondering how he could get over closer to the ship here; this pool we're in the middle of is too deep for his people to wade, and they don't seem to swim. I suggested floating over on a raft made of wood, but the wood on this crazy planet sinks, we found out."

"You seem to be getting in a lot of talk with those people. Are you really good at their language?"

"Pretty good, but we're still very slow. If there's anything you want to ask Swift, though, let's have it."

"No—nothing right now," said the

Drommian hastily. "You didn't suggest that your friend Swift make a raft of the sort Nick has?"

"I did, but he can't do it. His people can get all the skins they'd need, of course, but they can't make tight enough—I was going to say air-tight—bags out of them. They don't know how to make the glue Nick used, and neither do I. He's waiting until Nick gets here with the boat."

"And then will take it away from him, of course."

"Oh, no. He has nothing against Nick. I've told him who Nick is—how the robot stole the eggs from the place where Swift's people leave them to hatch. I think he may be a little mad at the robot, but that's all right. I've said I'd teach him anything he wanted to know, and that Nick had learned a lot and would help. We're getting along very well." The Drommian was startled, and showed it.

"Did Dr. Raeker suggest all this to you?"

"Oh, no; I thought of it myself—or rather, 'Mina and I did. It seemed smartest to be friends with these cave people; they *might* not be able to hurt the ship if they got mad at us, but we couldn't be sure."

"I see." Aminadabarlee was a trifle dazed. He ended the conversation casually and courteously—he had never used toward Easy the mannerisms which were so natural with him when he talked to other human beings—and started to make his way back to Raeker's observation room. The scientists were questioning the girl once more before he was out of the room.

He seemed to be fated to choose bad times to move, that day. He had been in the corridors when Easy had given the bathyscaphe's location to Raeker and Nick; he was in them when the four explorers who had discovered the volcano returned and made their report to their teacher. He had stopped to eat, as a matter of fact, and didn't get back to the observation room until the report was finished. By that time the four natives and the robot were heading south with the cart in tow, answering a ceaseless flood of questions from the scientists, some of whom had been content to use the relay system while others had come down to the observation room. The bewildered Drommian found the latter compartment almost as crowded as the communication room had been a while earlier, and it took him some time to get up to date from the questions and comments flying around.

"Maybe we could get the distance by triangulation—the wind at camp and 'scaphe must be blowing right toward it."

"But we don't know absolute directions at either place. Besides, the wind might be deflected by Coriolis action."

"Not much, on a world like Tenebra. You have it backward, though; the mountain is already on the maps. With a little more data we could use the wind direction to pin down the 'scaphe—" That was what the Drommian heard as he came in; it confused him badly. A little later, when he had deduced the existence of the volcano, it made a little more sense; he could see how such a source of heat could

set up currents even in Tenebra's brutally compressed envelope. By then it was another question that was perturbing him.

"How strong do you suppose the wind will get? If it brings the sea farther inland each night, and the sea carries the bathyscaphe with it, how close will those kids be carried to the volcano?"

"I don't think we need worry for quite a while. Wind or no wind, the sea that far inland will be mostly water, and won't float them very far. I'll bet if that thing keeps on, too, there won't even be liquid water within miles of it, by night or day."

"Liquid or gas, it might still move the ship. The difference in density isn't worth mentioning."

"The difference in viscosity is." Aminadabarlee heard no more of that one, either; it had given him something to worry about, and he was good at worrying. He started back to the communicating room at top speed, which for him was high; he didn't want anything else to happen while he was out of touch. He managed to reach his goal without hurting anyone, though there was a narrow escape or two as his long form flashed along the corridors.

The scientists had left Easy for the new attraction, and the bathyscaphe screen was blank for the moment. Aminadabarlee didn't pause to wonder whether the children were asleep or just talking to the cave dwellers; also, he didn't stop to wonder whether the question he had in mind should be mentioned in their hearing or not. He would have berated Raeker soundly for such a thing; but this, of course, was different.

"Miss Rich! 'Mina!" he shrilled unceremoniously into the microphone. For a minute or so there was no answer, and he repeated the call with what another member of his race would have recognized as overtones of impatience. Few human beings would have caught any difference from his normal tones. This time Easy appeared on the screen rubbing sleep out of her eyes, a gesture which either meant nothing to him or which he chose to ignore.

"Where's my son?" he asked.

"Asleep." Easy would not normally have been so short.

"Well, you'll probably do. Did you hear that they've found out what caused the wind?"

"Yes; I gather it's a volcano. I went to sleep just after that. Has anyone come up with more news?"

"Not exactly news. It's occurred to some of those human fortunetellers that your ship may be blown a little closer to the volcano each night, until you're in serious trouble. What does your friend Swift think about that? He's supposed to be able to predict what his planet is going to do, and he seems to have been able to find you each morning so far."

"Well, we certainly can't get there for several days; we can't see the light from the volcano from here."

"You mean *you* can't; it's what the natives can see, and what they think, that counts. Have you asked Swift?"

"No. I didn't know about this

until just now. Anyway, I'm not worried; if they'd seen the light they'd have mentioned it—they'd have thought it was the robot. We can't possibly reach the volcano for several of Tenebra's days—certainly not by tomorrow."

"Who cares about just tomorrow? How you human beings ever achieved even the civilization you have is a mystery to me. Intelligent people plan ahead."

"Intelligent people don't usually jump to conclusions, either," snapped the girl, in the first display of temper she had shown since the accident. "I'm not worried beyond tomorrow, because by the end of that day we'll be away from here. Please tell Mr. Sakiiro to have the shuttle ready to meet us." She turned her back and walked—stalked, rather—out of the field of view; and Aminadabarlee was too startled even to resent the discourtesy.

XII

Easy was awake again by the time Nick reached the bathyscaphe. He had had no trouble finding it; the glow from its lights was quite visible from the coast. The wind was blowing straight toward the light, but Nick and his friends knew nothing of the volcano at the time and didn't have to worry about whether they were heading for the right light. They came ashore, shouldered the raft, and headed for their beacon.

Fagin and the other four pupils had arrived before them; travel on foot was a good deal faster, even for the robot, than by the decidedly clumsy raft. Swift seemed to be in a very tolerant mood. He didn't actually greet the newcomers effusively, but he was talkative enough. He took for granted that they were *his* people—people who had gone a trifle astray, and didn't always know just how to behave, but who might be expected to grow up properly if given time. As long as they treated him as chief, it seemed likely that there would be no trouble.

Within a few minutes of the arrival of John, Nancy, Oliver, Dorothy, and the robot he had demanded to be shown how to make a fire. Easy, with her two-second advantage in reaction time, told John to go ahead before Raeker even knew the order had been given. John, knowing that the person in the bathyscaphe was one of his teacher's race, obeyed without question. He took out his friction gear and had a blaze going in two or three minutes.

Swift then demanded to be shown how to work the device himself; and by the time Nick, Betsey, Jim, and Jane arrived with the raft the chief had succeeded in lighting his own fire and was in the highest of spirits.

This was more than could be said for anyone on the *Vindemiatrix*. Aminadabarlee was more than ever convinced that human beings were an ugly-tempered, unco-operative lot; and just now he had more than the usual reason for his opinion. Every human being in the ship was furious with the Drommian, taking their lead from Elise Rich. A night's sleep had not restored her usual sunny temper; she

was indignant at the alien's insults of the evening before, and not only refused to explain to Aminadabarlee her justification for saying she would escape within a Tenebran day, but would say nothing more about it to anyone for fear he would hear. It was a childish reaction, of course; but then, Easy was a child, for all her adult speech and mannerisms. Her father had been asked to persuade her to talk; he had stared at her imaged face in the screen for a moment, but no word was spoken. Something must have passed between them, though, for after a moment he turned away and said, "Please have Mr. Sakiiro get the shuttle ready to meet the bathyscaphe. I understand it takes some time to install and adjust outside boosters." He promptly left the room, ignoring the questions hurled at him, and disappeared into his own quarters.

"What do we do?" The question was not in the least rhetorical; the geophysicist who put it was a close friend of the Rich family.

"What he says, I should think," answered another scientist. "Rich seems to be sure the kid knows what she's talking about."

"I know he's sure; but *does* she? He's her father; she's all the family he's had for ten years, and he's done a marvelous job of bringing her up, but he sometimes overestimates her. She convinced him, just then, that everything is all right; but *I* don't—*we* don't know. What do we do?"

"We do just what he asked," pointed out another. "Even if the kid's wrong, there's no harm in having the shuttle ready. Why is everyone so shaken up?"

"Because we know what will happen to Easy and her father if she's wrong," replied the geophysicist. "If she's been speaking from her own knowledge, fine; but if that ten-legged weasel made her lose her temper and shoot her mouth off so as to justify her actions—" He shook his head grimly. "She believes her own words *now,* all right, and so does her father. If they're disappointed—well, the kids have stayed alive down there so far because of the self-control of the Rich family." He ended the discussion by cutting in another phone circuit and transmitting Rich's request to the engineers.

Raeker had been eating and, occasionally, sleeping in the observation room; he'd forgotten by now how long he had been there. The robot was rather out of things, but he could still watch. His pupils seemed to have been re-absorbed into Swift's tribe, and were being told what to do alternately by the chief himself and by Easy in the bathyscaphe. Nobody was asking Fagin what to do or how to do it, but in spite of this things were happening almost too fast for Raeker to keep track of them. He knew that Easy had had an argument with Aminadabarlee, though he wasn't clear as to the details; he had been told about her promise to be off the ground the next day, but had no more idea than anyone else how she expected to do it. He had had his share of Aminadabarlee's temper, for the Drommian had not by any means been silenced by Easy's flare-up,

and had spent some time pointing out to Raeker the foolishness of separating his pupils from their own culture, and how much more would have been learned about Tenebra if contact had been made with Swift's people in the first place. Raeker had not actually been rude, but his answers had been rendered vague by his preoccupation with events on the ground, and he had thereby managed to offend the lutroid more than ever. He knew it, but could not bring himself to worry seriously about the prospect of severed relations between Sol and Dromm.

He knew in a general way what people were doing on the ground, but he couldn't understand all of it, and no one bothered to tell him. It never occurred to Raeker that this might have been at Easy's request; that she might be going to extremes to make sure that nothing like useful information got back to the *Vindemiatrix* and the being who had angered her so. He could only watch, photograph, record what conversation he could hear, and try to interpret what went on.

The raft was launched, and Nick and Betsey took Swift out on the surface of the pool to a point just outside one of the bathyscaphe's observation ports. Raeker could see the meeting between Tenebrans and the ship's two occupants, but could not hear their conversation—Easy was, of course, using the outside speakers, and the robot was too far away to hear these directly. The talk was long, and quite animated, for the gestures of all parties concerned could be seen—the port was large enough to let Raeker see fairly well into the 'scaphe even from the robot's vantage point. He tried to interpret the motions, but had no luck. The conversation did not end until nearly night; then the raft returned to the shore, and everyone began to pack up. A dozen cave dwellers helped carry the raft, others helped pull the cart. For the first time, Swift paid attention to the robot; he ordered it to come along, using Nick as an interpreter. Raeker agreed briefly; the journey was obviously to escape the sea, which would presumably come at least as far inland tonight as it had before.

"Where will the big ship go tonight?" he asked, more to secure a demonstration of the cave people's abilities than because the answer made any difference to him. He rather expected Swift would not bother to answer, but the chief was in a very good humor—everything had been going just as he wanted it all day. Once the group was under way, he walked beside the robot and talked quite cheerfully. Nick relayed his words, and he described in great detail the country which they were approaching and the point to which he expected the bathyscaphe to be washed. He also explained his reasons for this opinion, and the geophysicists listened, took notes, and watched with motherly care the recorders which were storing the conversation. For the first hour or two of that night there was more general happiness than the region of Altair had experienced for decades. About the only people not sharing in it were Aminadabarlee and Raeker.

Swift stopped his cavalcade after a scant two hours of rather slow travel. Night had fallen, and the rain was starting to do likewise; he set everyone to work gathering firewood, and ordered Nick to place the guard fires for a camp. Nick and his fellows obeyed without argument; Raeker suspected that they were human enough to enjoy the chance to show off their knowledge. Cave dwellers were at each of the fire sites practicing with friction drills, and one by one the piles of fuel began to glow.

For sixteen years, the lighting of the evening fires had been a signal for a forty-eight hour period of relaxation on the *Vindemiatrix,* since nothing

but rain ever happened at night on Tenebra. Now that was changed; discussion, sometimes verging on argument, went on full tilt. The engineers were busy festooning the outside of the shuttle with hydroferron boosters and their control lines. The diplomats wouldn't have been speaking to each other if they had followed their personal inclinations, but professional pride kept them outwardly courteous. People who knew them, however, listened to their talk very uneasily, and thought of jammed reactor control rods.

A few enthusiasts kept watch through the robot's eyes, partly in the hope that something would happen and partly to keep Raeker company. The biologist refused to leave the observation room; he felt sure that matters were building to some sort of climax, but couldn't guess just what sort. Even during the night this feeling grew worse—particularly at such times as he happened to see or hear one of the diplomats. Actually, Raeker was suffering badly from a sudden lack of self-confidence; he was wondering how he could possibly teach his students to make the necessary repairs on the bathyscaphe, even if they chose to listen to him. If they wouldn't, or he couldn't, he didn't want to see or hear of Rich or Aminadabarlee again; he had convinced himself, quite unjustly, that his own arguments had caused them to pin their faith in him and not undertake any other steps toward a rescue.

In spite of the anxiety which let him sleep only for moments at a time, he managed to get through the night. The departure of the shuttle distracted him for a few minutes—at one point he almost convinced himself that he should go along with it, but common sense prevailed. Several times incidents occurred at the camp, and were pictured on the robot's screen, which would have made him laugh under different circumstances. The cave dwellers were not at all used to fires yet, and had some odd ideas of their properties, uses, and limitations. Several times Nick or one of the other human-educated natives had to make a rescue as someone ran blithely into the dead air zone of a boiled-away raindrop to relight a fire. When they finally realized that a newly-destroyed raindrop was like a newly-boiled lake in the early morning, some of them took to waiting a long time before venturing near the extinguished fires, so that the fuel cooled too far to let the blaze spring back to life at the mere touch of a torch. Several of them grew worried about the fuel supply, which the experienced group had pronounced sufficient, and kept trying to persuade Swift to organize wood-collecting parties. Raeker could not, of course, understand these requests, but he heard a couple of his own people commenting on them with something like contempt in their voices. This made him feel somewhat better; if his pupils felt that way about the cave dwellers, perhaps they still had some attachment for their teacher.

Morning finally came without any serious incident in camp or at the

bathyscaphe; and once the hill on which the camp was located ceased to be an island—it had been surrounded by the usual rainfall, but not by ocean, as far as anyone could tell—the group headed for the spot where the bathyscaphe was expected to be. This meant a walk nearly as long as that of the previous night, since Swift and his people had expected little motion on the part of the stranded machine. Raeker didn't know whether Easy had reported any drifting; he hadn't heard her voice very often during the last forty-eight hours.

Raeker himself wasn't sure how far to believe the predictions of the natives, and wasn't sure how far he wanted to believe them. If they proved right, of course, it would mean a lot to the geophysicists; but it might also mean that Easy had some grounding for her optimism about the day's events. That was good only if it was *solid* grounding; and Raeker could not for the life of him imagine how the girl expected the machine to be either flown, blown, or carried up to a point where the shuttle could meet it. On the few occasions that he had dozed, his sleep had been troubled by wild nightmares involving volcanoes, floaters, and forms of sea life whose shapes never became quite clear.

There was no question of how the geophysicists felt when the predicted spot was reached and the bathyscaphe found to be absent. They buzzed like a swarm of bees, hurling hypotheses at each other with scarcely time to listen to their neighbors. Aminadabarlee fainted, and constituted an absorbing first aid problem for several minutes until he revived by himself, none of the men having the slightest idea of what to do for him. Fortunately, the ship turned up after a quarter of an hour's search exactly where it had been left the night before, which made things easier on the fathers but left many human beings and quite a few Tenebrans rather at a loss for an explanation. The sea had certainly been there; Easy had reported as much. Apparently its transporting power had been lower than expected. Some of the scientists pointed out that this was obvious; this much farther from its natural bed, the sea would be correspondingly more diluted with water. It satisfied him and some of his friends, but Raeker wondered how a slightly greater dilution of something which must already have been pretty pure H_2O, as pure water went on Tenebra, could make that much difference. He wondered what excuse Swift was using, but couldn't find out.

Nor could he find, except by guesswork, the nature of the plan that was being executed before the robot's eyes.

Hunting parties — judging from their armament—were sent out in great numbers, each one accompanied by one of Fagin's pupils with his ax. The raft made trips to the bathyscaphe, and Swift and several others examined its surface with great care; Easy seemed to be talking to them while this went on, but Raeker and his companions couldn't hear what she said. The natives were greatly interested in the hot area at the top of the vessel, where its refrigerators pumped

back overboard the calories they had drawn from the living quarters; they started to climb up the hull, by means of the numerous handholds, to examine this more closely. This act, since the craft was circular in cross section and just barely not floating, started the whole vessel rolling toward the raft; the climbers dropped back hastily. One of them fell into the lake, lost consciousness before he could grasp the paddles thrust down to him, and had to be showed clumsily into shallow oleum by his fellows lying on the raft above him. This brought the raft itself closer to the robot, and Raeker was able to hear Nick remark to Betsey, "This will save a lot of time. If the teachers inside don't mind, we can *roll* that thing over here where we can work on it."

"We may do it whether they mind or not, if Swift get's the idea," was the repy. "We'd better ask in English first."

"Right. Let's get back out there."

The two slid the raft back into the pool and paddled back toward the stranded vessel. This time Raeker knew what the conversation was about even though he couldn't hear it, and he knew how it came out—he could see Easy nod her head in assent. It was several seconds before a frightening thought struck him, and made him call the engineering department.

"Will turning that bathyscaphe over do any harm?" he asked without preamble. "The natives are planning to roll it out of that pool."

The men at the other end exchanged glances, and then shrugged at each other.

"Not as far as I can think at the moment," one of them said. "The ship was designed to fly, and it was assumed that inverted flight might be necessary. The kids may be bumped around a bit, and anything they've left loose will tumble, but nothing vital should suffer."

"Thank goodness for that," Raeker said feelingly, and turned back to his screens. The raft was on its way back to shore, and Nick was calling something to Swift. Raeker could get only a word or two, since the native language was being used, but he could tell easily enough what was being discussed. Swift got aboard as soon as the craft reached wading depth, loading it to capacity. Back at the bathyscaphe, he and Betsey seized the handholds on the hull and began carefuly to climb, Nick staying on the raft to keep it out of the way. Raeker expected some more accidents, but the climbers showed surprising skill and co-ordination, keeping just above the liquid surface as the ship slowly rocked toward them. It was lucky that the handholds extended all over the hull; Raeker was sure they hadn't checked this point before starting their stunt.

A quarter turn brought the hot "exhaust area" into contact with the pool, and set the oleum bubbling furiously —or as close to bubbling as anything could come under Tenebra's atmospheric pressure. There was enough disturbance to attract the attention of the natives on the ship, but not to be visible from shore.

Two full rolls brought her to wading depth, and robbed her of enough buoyancy to make another climber necessary. Three turns brought her right side up at the shore line. A slight complication arose when the climbers dropped off and she started to roll back, and for the first time Raeker was able to make himself heard and listened to; he gave some rapid advice about placing chocks, which Nick heeded. With the hull stable and the children staring out at the robot a few yards away, Raeker thought he might learn what was going on, and used the machine's speaker.

"Hello, Easy. We're finally together."

"Hello, doctor. Yes, your people are here. I thought we'd be able to do without them, but they've been a big help. Are you staying to watch the rest?"

The question startled the biologist, to put it mildly.

"Stay here? We're just starting to work. I'll call the engineers and have them listen in while I explain the electrolysis circuits to Nick and the others; they'd be here now, only I didn't expect the ship available quite so quickly. We'll find whatever wires are corroded or disconnected, and—" Easy must have started talking before he got that far, but the transmission lag delayed his hearing her interruption.

"I'm sorry, doctor, but I'd rather not have Nick fooling with the ship's wiring. I don't understand it myself, and I don't see how he possibly can keep from making mistakes. We're going up shortly, anyway, so please don't let him get into any of those inspection ports, if they're really open." The girl spoke as pleasantly as ever, but there was a note of firmness which no human being who heard her could mistake. Raeker was surprised, and then indignant.

"What do you mean, you'd 'rather not' have Nick work? Who else can? If you think he's ignorant of electricity, what good will it do for you to take over—or Swift? This plan has been under way for weeks, and you can't—"

"I don't care how long it's been organized, and I *can*," replied the girl, still politely. "Swift will do what I ask, and Nick will do what Swift orders. We're going to try Swift's idea first; I'm sure it will work, but if it doesn't perhaps we'll think about yours again."

Raeker looked around helplessly; the kid was right. There was no way in the universe for him to enforce his will. Maybe her father—no; Rich was listening in the communication room, and the relay screen showed something like an expression of satisfaction on his face. The biologist surrendered.

"All right, Easy. Will you tell me what this plan of Swift's is? And how, if you don't trust me and Nick, you can possibly consider an ignorant savage like one of these cave dwellers worth listening to?"

"Your scientific friends do," Easy replied pointedly. "If I tell you, 'Mina's father will hear, and he'll start thinking of things wrong with it, and

that'll get Dad worried. You just watch; it won't be long now."

"How does your young friend feel about not telling his father?"

"He doesn't mind, do you, 'Mina?"

"No," piped the young Drommian. "Dad told me to do what Easy said, and besides, he was rude to her. We'll show him!"

Raeker raised his eyebrows at this, and somehow felt a little happier about the whole matter. If someone was going to make a fool of Aminadabarlee—

And then Swift's plan became perfectly obvious. A group of hunters reappeared, towing among them the helpless form of a floater. The dangerous tentacles of the creature had been removed—it was obvious now why an axman had accompanied each group—and enough of its gas cells punctured so that it could be held down; but some were still intact, and their intended use could easily be seen.

The hydrogen cells of the bathyscaphe possessed, naturally, pressure equalizing vents on the lower side of the hull. While these vents opened into the cells on the wrong side of the plastic membrane designed to prevent hydrogen and air from mixing, the other side also had a plastic tube extending down to the same vent, for relief if too much electrolytic hydrogen was run into the cell. This tube was normally held shut, or rather flat, by outside pressure; but it was perfectly possible to push another tube in from outside, and run gas or liquid into the compartment. This the natives proceeded to do; Raeker was not sure of the nature of the tube, but there was nothing surprising in their being able to improvise one. There must have been a good deal of gas wasted in the transfer process, but this didn't seem to bother anyone. There were, after all, plenty of floaters.

"I see," he said through the robot after a few minutes. "But I think I see a catch."

"What?" Easy snapped the question with a speed which suggested she had some doubts of her own.

"That ship was computed around the lift of hydrogen. How do you know that stuff you're using will lift you high enough for your boosters to work, even if an engineer gets aboard to—"

"What makes you think this gas isn't hydrogen?"

"What makes you think it is?"

"What else is lighter than water, in the gas state, that's likely to be found on this planet?"

"Why, lots of things, I guess . . . I . . . I don't know; I hadn't thought of that." Realization struck him. "You've been talking to the engineers!"

"Of course. I don't mean to be rude, but where else could I learn anything useful about this ship? I'll admit you know the planet, but that wasn't enough."

"I see," said Raeker slowly. "I hadn't thought as much as I should about the machine; but I did ask the engineers about its wiring—and say! won't you need that anyway? What are you going to do when they get

enough gas into your cells to lift the ship out of their reach, but not enough to get you any higher? Hadn't you better have them tie the ship down, at least? You'd better wait until we—"

He was interrupted by laughter. It didn't come from Easy, who had looked impressed for a moment, but from the scientists in the observation chamber. Raeker realized that they were laughing at him, and for a moment was furious; then he realized he had asked for it. He put the best face he could on the matter while one of them carefully explained a little elementary physics.

And that, really, was all. Nick put to use the knowledge he had picked up in balancing on the experimental float, and made sure there were always more forward cells full than after ones. When the ship lifted, it naturally rode the wind toward the volcano; and it rose so slowly at first that the children had a good look at the terrifying sight. They dipped frighteningly toward the glowing mountain as it entered warmer air, but recovered in ample time as the hydrogen in its cells also warmed up. Gradually the glow faded out below them, and Easy and her friend waited happily to meet the shuttle.

EPILOGUE

"I told you human beings were helpless and useless." Happy as he was, Aminadabarlee gave up his ideas with difficulty. "You spend weeks trying to rig a rescue, and then are outsmarted by a savage with less education than either of these children. You spend a decade or two training agents of your own on the planet, and learn more useful facts in a week from natives you never bothered to contact directly."

"Natives who would have tried to eat the robot if any such attempt had been made," Easy pointed out. "Remember, 'Mina and I know Swift. He respected the robot because it could talk and tell him things. He'd have ignored it or destroyed it otherwise." Aminadabarlee's eyes sought his son, who made a gesture of agreement.

"Well, anyway, the natives with their own culture are a lot more use, and I'll prove it soon enough."

"How?" asked Raeker.

"I'll have a Drommian project here in three months. We can talk to Swift as well as you, and we'll see who learns more about geophysics in general and Tenebra in particular after that."

"Wouldn't it be more profitable to run the projects jointly, and exchange information?"

"You'd certainly have to say that," sneered the nonhuman. "I've had enough of co-operating with human beings, and so has the rest of Dromm, if my opinion's good for anything. You learned Swift's language, didn't you, Son?"

"Yes, Dad, but—"

"Never mind the but. I know you like Easy, and I suppose she's a little less poisonous than most human beings after the time she spent with you, but I know what I'm talking

about. Here—use the robot voice and call Swift over to it; you can say something to him for me."

"But I can't, Dad." Even the human beings could see that the youngster was uncomfortable.

"Can't? What do you mean? You just said you'd learned enough of their language—"

"Oh, I understand it well enough. I just can't speak it."

"You mean you just listened, and let that human girl do all the talking? I'm ashamed of you. You know perfectly well that no chance to learn the use of a new language should ever be missed."

"I didn't miss it, Dad," Aminadabarlee seemed to swell slightly.

"Then in the name of both suns, tell me what you did do!" His voice came closer to a roar than anyone in the room had ever heard from him. Aminadorneldo looked a little helplessly at Easy.

"All right, 'Mina," the girl said. "We'll show him."

The two took their places before the microphone, which Easy snapped on. Then, keeping their eyes fixed on each other, they began to speak in unison. The sounds they produced were weird; sometimes both were together, sometimes the Drommian carried a high note alone, sometimes Easy took the deeper registers. A similar sound, which Raeker recognized perfectly well and understood slightly, came from the speaker; Easy started an answer, using her hands to guide her "little" companion on what words were coming next. They had apparently worked out a fairly satisfactory deaf-mute code between them; and while they spoke much more slowly than Swift, they were obviously perfectly clear to the native.

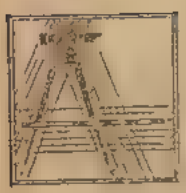
"He's here, councilor," Easy remarked after a moment. "What did you want to say to him? This particular translating team is ready to go to work. I do hope you'll forgive 'Mina for co-operating with a human being. There really wasn't any other way, you know."

Nobody laughed.

THE REFERENCE LIBRARY

BY P. SCHUYLER MILLER

WHERE WE STAND



A COUPLE of weeks ago, at this writing, I had the privilege of one of the periodic interviews with which the local press plagues the officers of the Pittsburgh Science Fiction Association. The results this time were a little better than usual: it was a science writer instead of the Woman's Page, and although the photographer insisted that we must be sprawled on our stomachs on the floor—"the way everyone reads science fiction" (you don't argue with a Hearst photographer!)—most people thought we were respectably lined up at a table.

Although some of the wrong comments were put in the wrong mouths, the general impression of science fiction was not at all bad. It made it pretty clear that we're not

wild-eyed fanatics who hobnob with little green men. Not that some SF readers don't, but *we* don't—and I'd feel safe in saying that the typical reader of Astounding doesn't.

This question of where science-fiction readers stand on some of the more sensational apparitions of the day seems to bother people—not just reporters. The papers are full of news and counter-news about satellites and moon rockets: do we really believe we're all going to the moon? Do we really believe that flying saucers are piloted by spacemen? Do we . . .

I'd like to suggest that you take a look at a 1957 book by a German science-writer, Wolfgang D. Müller, "Men Among the Stars" (Criterion Books, New York; 307 pp.; $4.95). I am not recommending it because it is the latest word on sputniks—no book can possibly keep pace with what's happening in the sky, and this doesn't try. I do want to commend its ease and clarity of style, which may be the work of an unidentified American translator but is more likely to be the author's own, since he edits the German nuclear-energy magazine, *Die Atomwirtschaft,* and writes regularly for the German newspapers and magazines.

The book is a very good, general survey of Man's efforts to reach the stars and his evolving ideas about what he will find there. It tosses in such facts—ignored by the American press—as that three V-2's failed to go up before the first succeeded, and twenty per cent of the first hundred launchings were duds, while our own Vikings showed about the same record. But it is especially good for what it has to say about the public's changing attitude towards science and scientists. I'd like to quote from his chapter on flying saucers, and why they have become a mania of our times and our civilization:

"Science . . . leaves the preplexed without counsel. The important fact here is that science must by its nature be unable to supply such an answer, and that its 'failure' sounds an alarm which should call attention to the real nature of our predicament.

"It is simply this: we have been cut adrift from the secure, unchanging, comforting fundamentals of a coherent and firmly circumscribed world view in which strong religious belief set strict limits to all speculation. Simultaneously we have learned to seek advice and support from science for all our problems, whether they concern birth control or social theory, psychoanalysis or flying saucers. We trust science; in return it has done us wondrous favors. Thus when we ask too much of science, overstep the limitations, we lose our foothold, staggering into the measureless no man's land of fantasy and fear."—pp. 104-105.

For most of Man's lifetime, religion has ruled human society and directed its thinking—and religion, *by definition,* has all the answers. It gets them direct from the ultimate source of all authority—again by definition.

Science — again by definition — *does not* have all the answers. It never will have. And this is mighty

poor consolation to the person, whether a housewife or one of the Joint Chiefs of Staff, who wants *the* answer and wants it *now*.

Science-fiction readers, of the breed who favor this magazine, seem to me to be people who understand this basic fact about science. We can keep our fiction separate from our fact, and while we're willing to go along with the most fantastic speculations in a story, we bristle like watchdogs if the same kind of thing is served up as fact.

Atlantis, and lost super-civilizations in general, used to play a pretty strong part in science fiction. They're just about dead now, as knowledge of geography, geology and archaeology has spread. Instead, you find the "Golden Age" theme absorbed into occultism — into religion — where "facts" are established by revelation instead of investigation.

The "Shaver" movement in *Amazing Stories* is another variation on the Golden Age theme, and it followed the same course. So long as the stories could be read as fiction, what science-fiction readers thought of them was a matter of literary taste. But when they were presented as fact, and a wild-eyed borderland of confirmatory "evidence" was produced to support the claim that Shaver's subterranean world exists and his history of Mankind is true, science-fiction fans rose up in arms—and Shaverism has been absorbed into occultism.

Velikovsky's revision of astronomy and rewriting of history never really got a foothold in science fiction; it was occult, and *a* cult, from the start. The Velikovsky books have been bought pretty largely by people who we delighted to find "scientific" confirmation of the literality of the Pentateuch, and by people who simply like to have the authorities deflated.

Flying saucers are our present counterpart of these older cult-movements on the fringes of science fiction. And this time we are really on the fringe: I've heard Major Keyhoe speak, recently, and I'm convinced that he sincerely believes that UFO's are vehicles flown by beings from another star. The means of propulsion may be unknown to physics and chemistry—as yet—and the saucer "people" may or may not be human, but they are natural and scientifically explicable in Keyhoe's view.

For contrast, read such saucer books as Gavin Gibbons' "They Rode in Space Ships" (Citadel Press, N. Y.; 1957; 217 pp.; $3.50). This book summarizes the reports by Truman Bethurum, of his series of encounters with Captain Aura Rhanes, the little lady from Clarion, a planet "behind the Moon," and the long conversations that Daniel Fry had with the invisible, telepathic Aylan. An earlier book by this author, "The Coming of the Space Ships," is scheduled for United States publication in April; it treats George Adamski's encounters with saucer people, and others in both Europe and America, as accepted

fact—in spite of the many, many contradictions within the accounts and among those by different "prophets."

It is apparent over and over again that the author is fitting these alleged contacts with people from space—or from the spirit world, or other "vibrations," as Gibbons suggests in one place—into the revelations of occultism. Gibbons has four classes of UFO neatly named, with names taken out of the Hindu mythology on which the Blavatsky-Churchward mystique is based: "Vulya" for the huge disks; "Vunu" for cigar-shaped "mother ships"; "Vimana" for ordinary two or three-man saucers; and "Vidya" for unmanned, remote-controlled reconnaissance craft. I am sure that he and the growing mob of saucer cultists believe all this most implicitly—Keyhoe was properly quite cagey about *his* views on these contacts—and I am equally sure that most science-fiction readers do not.

But now we are getting on quivery ground—because most of us certainly believe that there are intelligent beings on some planets of other stars, many of us would concede that such "people" may have come upon sources of energy and means of locomotion of which we know nothing as yet, and a good many of us would agree that UFO's *could* be space craft, though we haven't seen any good evidence that they are.

By the same token, many of us are agreed that something, rather undefined, called "psi" powers, exist and place the human "mind" in startling and unorthodox relationships with physical objects and events. We're very happy to have them used lavishly in fiction, but we're still a little uneasy about them as "science." We may, incidentally, be a bit confused about whether hypnotism — which more and more dentists and surgeons are using as a tool—has more "reality" than telepathy or psychokinesis or the Hieronymus machine.

These various themes that science fiction and fantasy have shared and are sharing with cult-type movements seem to me to be of two main kinds: "They"-centered, and "We"-centered. The first are the kind of thing Wolfgang Müller was discussing in the passages I quoted—a groping for a dogma, an authority, to bolster us up in this uncertain world we're in. Atlantis—Mu—the sages of Mount Shasta or Tibet—the "geniuses" who made the pyramids, or the Easter Island statues, or the fortress of Sacsahuaman—the people who drive the saucers—all these, severally and in some ungodly amalgams, are variations on the idea that a Great and Wise Power has existed, or does exist, which can solve all our problems if only we'll let it, and bring back the Golden Age. We want archaeologists to dig up the "secrets" of Mu or Egypt and make everything easy again; we want All-wise, All-powerful people from the stars to come down and take care of us.

The "we" I've just been using covers the cultists and occultists, and it may take in some science-fiction

fans, but I don't think it includes many habitual ASF readers. *We* keep our facts and our fiction separate.

The We-centered themes aren't quite so easy to categorize. The connecting link here is the feeling that *we* have unrecognized powers that are real, but that are not defined and certainly can't be used at will—yet. Maybe we can read minds; maybe we can predict the future; maybe we can deflect dice; maybe we can make ourselves mental supermen by somehow dredging out all the odds and ends that have been buried in our minds since birth—or before. This time, pretty often, "we" means us—if you get what I mean. As a matter of fact, to deny categorically that we have or can have such hidden powers, is a slap at our own vanity and we bristle automatically.

The lunatic fringe of the we-centered themes carries this narcissism to the extreme. We can discover cure-alls. We know better than the experts — any expert. "Scientific laws" that can be derived intuitively, by "common sense," are sounder than those worked out by abstruse mathematical nonsense. This, it seems to me, is at the core of Daniel Fry's version of the teachings of "Aylan" —he, speaking as Aylan, knows better than the physicists whose arguments he can't follow.

We're in a "time of troubles" when nothing is secure or certain. Whether we're looking for an apron string to cling to, or stalk down the street with a chip on our shoulder, determines the kind of science fiction we believe. Unless, that is, we're old hands here at Astounding, and know fact from fancy.

CITY UNDER THE SEA, by Kenneth Bulmer.

STAR WAYS, by Poul Anderson. Ace Books, New York. No. D-255. 175+143 pp. 35¢

Kenneth Bulmer has been hewing himself a sound place in English science fiction since he visited the Cleveland convention in 1955. In this adventure novel he plunges deep into the field of subsea ecology that has recently been exploited very ably by Andre Norton, Pohl and Williamson, the Sizemores, Arthur C. Clarke, and most notably by Frank Herbert with "Dragon in the Sea," serialized here in Astounding as "Under Pressure."

A lot happens—a whale of a lot, and no pun intended—but in spite of a wealth of detail and color, it never quite jells. Jeremy Dodge of the Space Navy comes back from the Moon to investigate a legacy—one of the subsea farms on which most of Earth depends for food. In no time at all, he finds himself a kidnaped slave on one of these farms, highjacked by raiders from another and surgically converted into a water-breathing manfish, drafted as a pikeman into forces that are trying to fight off an onslaught of electronically controlled fish directed by an unknown—and never really explained —force from the great deeps, and

an unconscious pawn in an interservice hassle between the forces of Space and the Deeps. The most interesting character is not the heroine —who goes through the whole mess in the same *bikini*—but a delightful little pilot fish named Sally, inherited from a dying shark.

The reprint half of the Ace Double is from the 1956 Avalon edition. I said then, the cover tells me, "Enjoyable from first to last. Fast-moving and convincing." I still say so. Poul Anderson's Nomads are another name for the People in Heinlein's "Citizen of the Galaxy"—traders of deep space. They go out to look for trouble, and have no difficulty finding it. It's well worth your thirty-five cents, and Bulmer is the bonus.

EXTINCT LANGUAGES, by Johannes Friedrich. Philosophical Library, New York. 1957. 182 pp. $5.00

Don't: I think you'd be disappointed—and several of this publisher's other recent books were remaindered here in Pittsburgh *before* the full-priced editions went on sale. So watch for it on your remainder shelf.

I hoped to get an account of the languages of antiquity that would tell me something about what language reveals about the people who spoke it, and about the probable and possible relationships among these peoples. I thought there might be something about how Sumerian and Egyptian and the rest were put together, and how language evolved along with society. I even hoped for something about glottochronology, that recent "science" that is trying to date the separation of languages from each other and from supposed parent stocks.

Instead, the book is a kind of watered-down "Gods, Graves and Scholars" of linguistics—an account of the way in which these ancient scripts were deciphered and translated. What there is of the people who spoke and wrote these tongues comes mostly by indirection, through the author's examples. It's scholarly enough, and apparently sound enough, but it just doesn't go far enough. You'll be convinced of one negative thing: it's most unlikely that any future scientist can ever translate inscriptions found on another planet, where there's no possibility of a bilingual key.

SPECIAL REVIEW—

ATLAS SHRUGGED, by Ayn Rand. Random House, New York. 1168 pp. $6.95

This work is science fiction in the same sense George Orwell's 1984 was. It's about equally bleak, in many respects. But it is, I think, more important; Orwell described what tended to happen. Ayn Rand describes, with powerful accuracy, some of the forces that make disaster happen . . . and what the methods used by the destroyers are. The psychological tricks that permit a weak, snide, useless, incompetent to bind the strong

and constructive by means of that strength. The story is apparently—at first glance—a study of sociological forces. But unlike any professional sociologists' works, it recognizes that sociology starts at home—with the individual - individual relationship patterns.

You'll not only find all your own private worst enemies in the book—but, more useful, some beautifully objective and detailed mapping out of the exact techniques by which you have, yourself, been swindled.

The book has the corrosive bitterness that unwanted truths frequently have.

It's longer than need be—by about fifteen per cent, perhaps. For the ideas Ayn Rand seeks to convey, most of those 1168 pages are necessary.

The work has one fundamental flaw; it is an effort to study with complete honesty and objectivity the techniques—the strategy and tactics—of the battle between the creative producers and the looter-moocher type who seek to make the producers slaves who produce for them. She's done a fine job; I agree wholeheartedly with her basic thesis that the essence of truth-finding is to acknowledge the fact that the method you've tried didn't work.

But . . . Ayn Rand didn't do that in one crucial aspect. Her heroes are all forced to flee the scene. The moochers do, in bitter fact, have a technique that her creative-producers never succeed in matching, or defeating. It's quite true that the moochers can't survive without the productive, creative thinkers—but her heroes succeed in destroying them only at the cost of destroying everything they ever produced. You *can* get rid of the rats by burning the infested house down, of course . . . but it's a poor victory. Giving a man a dose of potassium cyanide will definitely halt the progress of any disease he has—but that can't be called a cure!

Ayn Rand, I think, violated her own philosophy in that one respect; *the methods of the moochers do work.* Like it or not, hateful or not . . . the purely objective analysis still comes out: The moochers have powerful, effective, highly important techniques. Better—as they prove in field trial, again and again—than the most effective techniques of Science, Logic and Reason. "Better" in the crucial sense that they serve very effectively to destroy the creative-industrialist, and all of his counter-weapons of logic, reason, science, and effort are inadequate. Her heroes have to retire in defeat, to come back again, they hope, later.

Their comeback will, predictably, be defeated the same way again . . . because, by rejecting the fact that moocher-methods work, simply because the methods are used for destructive ends, they have failed to learn any competent defense. Their whole attitude is "Such things are evil and should not be!" Maybe so—but futile in the face of the fact that they do exist, and do work.

The magnificent contribution of Ayn Rand's book is that she has described in unequaled brilliance of

clear detail, exactly what many of those methods are.

She hasn't solved the problem of what to do about those methods; true. But she has done a better job of pointing out, with perfect clarity, the techniques that will drive men into suicidal insanity, than any psychological treatise I've ever seen.

And there's really little point in treating people for the plague, when no effort is made to stop the rats and fleas that spread the disease. Psychotherapy isn't going to do much good until more time and effort is invested in studying the moocher-methods Ayn Rand points out.

If, after reading "Atlas Shrugged," you can't spot at least one or two individuals in your immediate, personal neighborhood who are, right now, using the highly effective moocher-techniques against you, you are most uncommonly fortunate.

By the way—this is a book to start on Friday evening. You won't be much good to anyone else until you've been allowed to finish it. It's quite a yarn, as well as a philosophical work.

JWC, Jr.

THE BLACK CLOUD, by Fred Hoyle. Harper & Brothers, New York. 251 pp., $2.95

Fred Hoyle's name has become associated with a group of astrophysicists who advocate a "steady state" universe in which matter is being created at just the right rate to compensate for expansion and preserve a constant density in space, as opposed to an "evolving" universe, in which the density decreases with time. Some of the concepts involved in the study of the peculiar properties of diffuse matter in space doubtless led to many of the ideas in "The Black Cloud," Mr. Hoyle's first venture into fiction. As might be expected, it is science fiction laid a few decades in the future, dealing with a group of astronomers confronted by a mysterious menace in the region of Orion. In this instance, the menace is a black cloud or simply Cloud, which is heading straight for the Sun. (They name it Joe later on). The earliest story of this type I can recall is "The Star," written some fifty years ago by H. G. Wells. But whereas H. G. Wells was content merely to tell what happened as the menace came rushing sunward, like a radio commentator describing a football game, Hoyle creates these happenings in vivid detail.

The scene opens on Palomar Mountain where the first plates of the region around are taken by a young astronomer at the eighteen-inch Schmidt telescope. The Cloud itself is not discovered till several days later when the plates are examined in the office of the Observatory. A senior staff member checks on the strange object. His interest is aroused to such an extent that he asks the Director to call a meeting in the library at once. A theoretical astronomer estimates the Cloud should reach the Sun in about eighteen months.

The action then shifts to London where British astronomers arrive independently at the same conclusion. They are especially disturbed over the density of the Cloud, which appears high enough to blot out the Sun entirely. What to do? The astronomers get together and after some debate decide to inform their respective governments. Difficulties follow thick and fast, with the government officials bungling badly, and the Cloud getting more menacing and behaving more erratically every day.

It is not until we are about a third of the way through the book that the author settles upon Chris Kingsley, thirty-eight, a Professor of Astronomy at the University of Cambridge, as his lead character. This shifting point of view in the early chapters is often disconcerting. Doubtless astronomers at Cal-Tech or Mount Wilson will eagerly peruse the book, hoping to find themselves or their friends therein. In my opinion they will search in vain. Hoyle is not nearly so much concerned with characters as with ideas. He gives his characters certain tags which are sufficient to distinguish them in fairly obvious ways, but to me they never emerge clearly. You have the feeling that the author is so anxious to hurry on to the next complication that he doesn't want to waste the time in building up his characters.

A wholly unforeseen development occurs toward the end which I will not reveal, as this would spoil it for other readers. It must suffice to say that it is somewhat reminiscent of the Voice in the Whirlwind from the Book of Job.

"The Black Cloud" moves at a fast pace, it always held my interest, and is recounted with such an abundance of authentic detail that you almost begin to believe it afterwhile. Incidentally I found Hoyle's astronomers the most lively enterprising lot I have ever encountered. Would there were more of them in real life.

Although fiction allows a writer much more freedom of expression than prose, in my opinion it also makes much greater demands upon his ability as a writer. We sincerely hope that Hoyle will not be satisfied to let "The Black Cloud" be a one-shot in the fiction field, as his first novel shows so much promise it surely deserves a second.

Robert S. Richardson
Mount Wilson and
Palomar Observatories

THE END

★ ★ ★ ★ ★ ★ ★ ★ ★ ★

(*Continued from page 7*)
pot, a group becomes a Learned Society. And this isn't as foolish or cynical a statement as it may seem; the group, by cross-checking each other, has the raw edges of fanaticism worked out, and the discipline of straight, objective thinking strengthened. The group does become something that no one of its members could.

What is needed, and needed badly in the modern world, is an organization of Gentlemen Amateurs. The time for such an organization is, I hold, decidedly *now*.

Right now, the world of human thinking is in need of a major—not a minor—break-through. The immense progress made under the Scientific Method can continue—but it has reached the Point of Diminishing Returns. We *can* make further progress by that method . . . but the cost is mounting exponentially, so that research is rapidly approaching a point where we can no longer afford it. Try plotting the cost in dollars invested in research in the United States, per invention-or-discovery, for each ten-year period since, say, 1830. It's as pretty an exponential curve, heading asymptotically toward infinity, as you'd care to see. It used to be that military costs were the major investment of the national budget; now, scientific research is rapidly exceeding anything the military forces as such ever dreamt of consuming. Yes, I know we're making important progress . . . but the progress Edison, Bell, Eli Whitney, and those earlier researchers made didn't cost the nation twenty billion dollars or so a year.

Moreover, everyone who has studied the modern educational system—and there's been plenty of rather frantic studying since "those stupid Russian Communists" put half a ton of hardware into orbit—has agreed that the unusually brilliant individual child is definitely being deadened, bored, and stagnated by our system of education. There is no room to develop his extraordinary talents. Certainly not within the *professional* educational system . . . and there is no amateur educational system to supplement and encourage unorthodox, but sound and cogent thinking.

The youngsters of high ability and genuine originality are being destroyed by suppressing their creative tendencies—a major waste of the greatest resources of the human race.

There's another major resource that this nation is wasting. In our era of Professionalism, a man who is retired from his Profession, due to either social or company policy requiring retirement at age sixty-five, is, of course, considered incompetent for anything but being turned out to pasture.

This means that a man with the training of many years of hard, disciplined, organized thinking, with a mind trained through the rugged practical experience of having to make his thinking work, and work right, theories to the contrary not-

withstanding, is considered useless. The immense education-beyond-educational-systems of forty or so years of living the professional work is discarded—forbidden to apply itself usefully.

It's appropriate that the older generation move over and make room for the younger—and appropriate that the younger take over the heavy, steady pressure of the chores.

But the retired professional thinker is in a perfect position to move over—into the position of Gentleman Amateur! He can, and can afford to, spend time, effort, and energy on speculative thinking, on hobby projects. Freed of the chores of economic necessity, he is in a perfect position to apply himself to the Unknown Areas, instead of to the necessary unsolved problems within the well-known areas. The latter constitutes the necessary business of being a Professional. But the former is the work of the Natural Philosopher.

Of course, it's pretty futile to spend time and effort doing research, when no one will pay any attention to the odd ideas of someone with no experience in the field. It takes a group of men to do what no man can do; a group, a society of Gentlemen Amateurs can force their ideas and projects to attention, where no man could.

Equally important, many a hobbyist in one field has been blocked completely because he could not get equipment he needed, since the equipment involved a quite different field. My hobby is electronics; many times I'm stopped helplessly, because I'm not a machinist, and a mechanical engineering approach is needed. Or perhaps it's lack of optical techniques, and optics isn't my hobby, and I haven't time enough for the research necessary to get started.

A group of amateurs, however, could team up on a problem that no one could solve. A pet project of mine, now, is a totally new type of electronic musical instrument . . . but it happens to entail specially constructed machine parts, optical systems, and electronic circuits. I'm helpless on two-thirds of the problem. The finished device should have tone-quality as a *continuous* variable, in addition to the usual amplitude and pitch variables. Of currently available musical devices, only the human voice has continuously variable tone quality. Of course, it would take a musician to help on such a project . . .

And I know that there are hobbyists—amateurs—with the skills needed, and the home workshop tools needed, who are uncomfortable, dissatisfied, because they haven't any project that is a worth-while challenge to their abilities and equipment . . .

There is, in this country today, an immense potential for achievement, in home workshops, in retired professionals, in youngsters who aren't allowed to try the creative potentials they have in them—not in our super-organized educational system.

Youngsters all over the country have tried building their own model

rockets—and many times with disastrous results. Our science teachers, God knows, are trying—but many of them are not competent to handle the problem. Only recently, a science-teacher and several of his students were killed by a model-rocket they had co-operated in building . . . and loaded with a "propellant" made of a mixture of potassium chlorate, sugar, and powdered zinc. Any chemical engineer knows that that mixture cannot, under any probable circumstance, be made to burn, as a propellant must; it either detonates with enormous violence, or hasn't been mixed enough to react at all. If there had been a local society of Gentlemen Amateurs, of Natural Philosophers, they could have supplied that teacher, and his sincerely ambitious students, with the information that would have saved their lives. "You can't do it!" is never adequate for the youngster who wants to accomplish; "You can probably do it better this way," is what is needed.

But how can such speculative thinking groups be organized? How and where and when does it start? A super-saturated solution needs a seed-crystal, however ready it may be to start crystallizing.

That, we are going to try to supply. If our hunch is right, if the nation does represent a super-saturated situation, ready to crystallize on a new Society of Gentlemen Amateurs . . . we'll have started something.

The Interplanetary Exploration Society has been formed; it's a ghost of a skeleton of the organization we have in mind—about thirty men in and around New York City. The title was picked because the very fact of the present reality of off-this-world vehicles helps to establish in a general audience the fact that speculative thinking does, and has, paid off. And because "interplanetary" is a term meaning a great deal more than most non-science-fictioneers realize; the furthest nebula the greatest power of the Palomar Mountain telescope can reach lies within the domain of "interplanetary." If we called it "The Universal Exploration Society," the title wouldn't have the acceptability the present title has . . . even if it would mean exactly the same thing.

The problem of Man is, always has been, and always will be that of exploring the Universe—and *not* just the *known* Universe!

The interplanetary exploration that is immediately ahead of us will, moreover, enforce on men the fundamental attitude of the Natural Philosopher; the interplanetary ships are going to enforce co-operation and mutual interaction of *all* fields of knowledge. Physicists can't build them. Electronics can't build them. Biology, psychology, sociology, chemistry . . . all have to co-operate. The importance of inter-relating various sciences will be steadily more apparent as interplanetary problems are considered. And the interrelation of all human science will, of course, be

the business of the Natural Philosophers—the Gentlemen Amateurs.

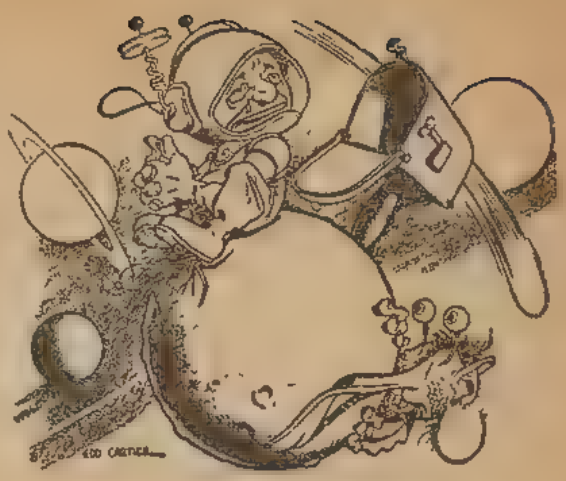
Street & Smith has agreed to publish a Journal for the Interplanetary Exploration Society. The Society, however, at the moment happens to lack the cash money needed to finance the necessary Journal.

The Journal seems to us to be a necessary starting point, simply because some form of communication medium must exist in order for the local Societies to grow around it. The railroads had to be established as communication lines before the Great Plains country could be settled; so the existence of some communication line seems the quickest way to establish the speculative society.

At first, the articles for the journal will have to be supplied by already-developed speculative amateurs like Dr. Isaac Asimov, Hal Clement, and others. Dr. Asimov is a Professor of Biochemistry—but he's a Gentleman Amateur when he talks about radioactivity, of the meaning of extremely large numbers.

But the essential purpose of the Journal will be, of course, to publish the papers that come out of Society meetings, as those meetings develop. This Society is *not* going to be a service organization, in which somebody does something for you—you're going to do it yourselves. If you don't . . . there's no point in it at all.

The organizational concepts are, appropriately, I think, very vague indeed as yet. The local groups that are needed will determine what the



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practical, working form should be by trying it out and seeing how it works.

There will be a National Headquarters; currently, the New York group is working to get that headquarters organized.

The essential proposition will be that anyone who wishes to may subscribe to the Journal; that can be bought for money. But membership in the Society will not be purchasable; it will have to be earned. In any local area, any group of individuals who want to found a local chapter will earn membership by the act of getting up and doing something active and effective about starting the group. The fact of having the gumption to do something instead of saying "Somebody ought to . . ." will be the price of admission.

Thereafter, the original members of a local chapter can induct members at their discretion; it will be a private club, to which no man has "a right" to belong. This will make it possible to strain out true crackpots; if the crackpot wants a club of his own, he's entitled to start one. True crackpots, however, are characterized by an inability to modify their viewpoints sufficiently to form a working team with anyone else, so they're somewhat unlikely to establish a working group.

The discussions in a group would be open to anyone the group chose to admit. And while any speaker they chose to give the floor might express his views—*no* speaker would be permitted to claim "professional status and authority" in any argument. Thus while a physicist, for instance, might properly say, "Modern physicists hold that X is true," he would have no right to say, "X is true, as any true physicist will tell you." The first statement may be a fact; the second statement is an expression of argument by authority, and doesn't belong in a Society of amateurs. The physicist can, and should, contribute what modern studies *believe* to be true . . . but he should have the wisdom to remember Ptolmaic cosmology, phlogiston, Newtonian mechanics, and several hundred other instances of firm beliefs that weren't as valid as their holders insisted. Also, for that matter, Astrology; if the argument "It has been known for many years that . . ." is advanced, then Astrology takes precedence over the data of Astrophysics. Its "data" has been known a great deal longer than that of Astrophysics.

Data is data . . . but meaning is something else. And the basic goal of the Natural Philosopher is to determine meanings, not data. The professional scientist can do a far better job of determining data than any amateur can. Data is like the famous handwriting on the wall; anyone can see it—but the problem is "What is the correct interpretation of that which we see?"

The physicist, of course, has every right to belong to the Society; he's an amateur medical researcher, chemist, geologist, in fact an amateur anything-but-a-physicist. The local M.D. is a duly admissible amateur in any-

thing but medicine. If he seeks to act as an M.D.—send him along to his professional society!

Interested?

The first issues of the Journal will come into existence if, and only if, the Society gets two thousand or more subscriptions. I will be the first editor. It will start as a forty-eight-page, slick-paper journal, issued quarterly. Since it will be the cost of typesetting and printing machinery time that will constitute the major cost, paper costs will be unimportant at first—so we will use the best quality paper.

Subscriptions will be five dollars per year. If the subscriptions reach greater numbers, the printing costs will, of course, be divided down; that will permit increasing the size of the Journal.

At the start, before articles come in from local Society groups, we will have trouble getting enough good material; hence the forty-eight page issue will be about all we can fill with the quality of article we will want.

If you, personally, want this Society, and this Journal, and the opportunity to help build an effective modern-period "Royal Society" of Gentlemen Amateurs—fine! Pitch in! But it's one of those things that can't be done for you. This is definitely *not* a spectator sport.

If you want to give the idea a try—we need subscriptions to get started. (And "we" there means the Interplanetary Exploration Society, not

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Street & Smith, nor the editorial "we.")

Subscriptions can be obtained by filling out the blank herewith. Progress of the project will be reported in Astounding here, until such time as the Journal itself gets rolling; it will then be entirely separated from this magazine.

The address of the Interplanetary Exploration Society is, temporarily at least, care of Street & Smith Publications, 575 Madison Avenue, New York 22, New York.

For further information on setting up a local organization, write them. Remember that it is essential to the nature of the organization that while membership includes a subscription to the Journal—anyone can buy a subscription, but no one can *buy* membership. Therefore, subscriptions will be handled separately from membership.

We're definitely amateurs at this business ourselves; we want and will appreciate suggestions as to best methods of organizing local groups and group projects.

In writing to the Interplanetary Exploration Society, I suggest you supply a statement of the nature of your own training, hobby interests, and competences. Reason: as local groups are organized, a file of membership prospects in any local area available at the National Headquarters will be a large help to the local group-organizers.

THE EDITOR.

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Continued from back cover

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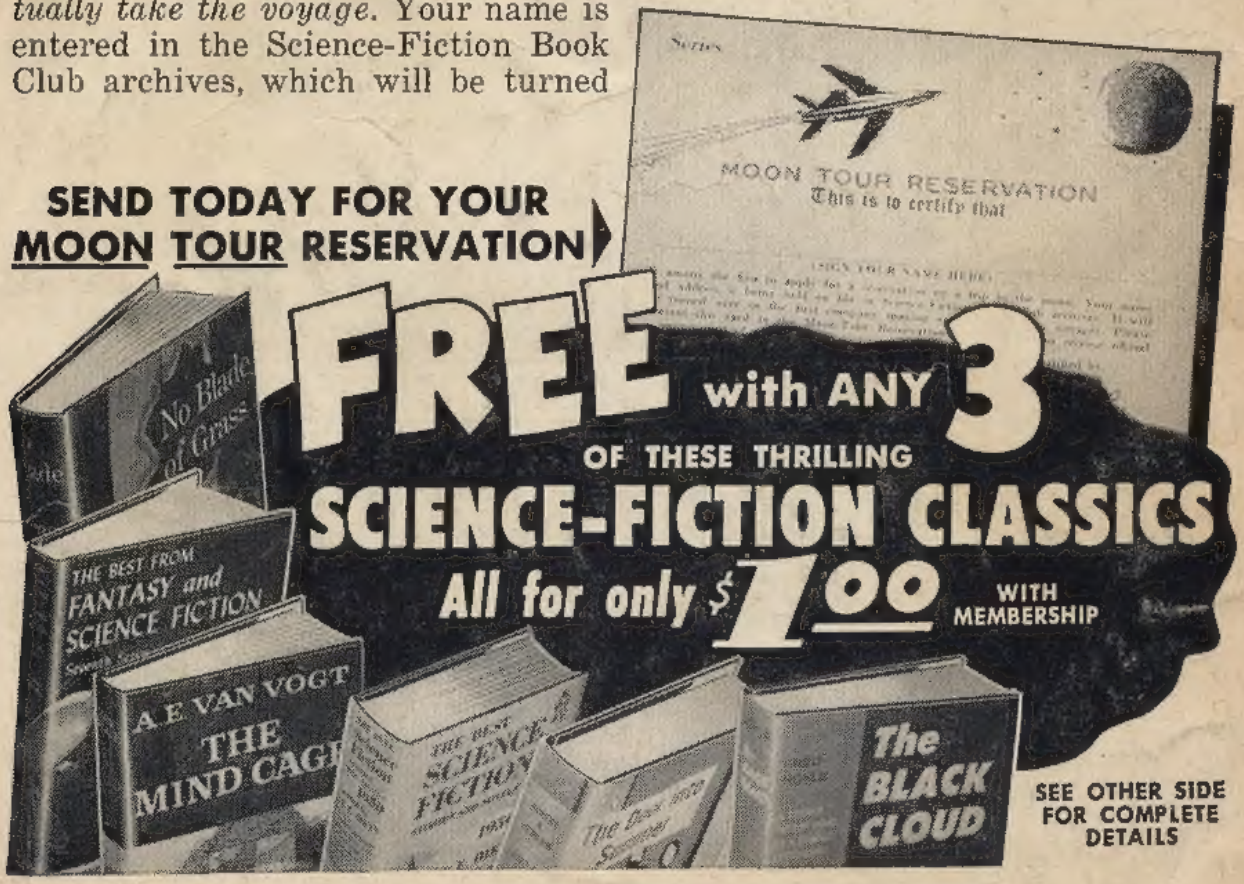
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